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CONTAGIOUS FOOT-ROT IN SHEEP (*PARONCHYIA UNGULARIS OVIUM CONTAGIOSA*).

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To most English readers, perhaps, the title of this paper will appear a misnomer; and there is doubtless considerable danger of the article being thrown aside unread, as treating of a fanciful and unreal subject. To those who have studied the affection in the light of the veterinary literature of Continental Europe, and yet have rejected the theory of contagion, the author is not vain enough to hope to carry an easy conviction. But as this new hemisphere presents special evidence unknown to Europe, it is but just that this should be placed on record, as one more blow of the hammer which must ultimately (as I believe) drive conviction home to every candid mind. The writer of this has the fullest sympathy with those who differ from him in opinion, since up to eight years ago he held the theory of the contagious nature of the disease in doubt, in spite of his acquaintance with Continental literature, and his personal knowledge of the Continent and its practice. It was American testimony that decided his

faith; and in the cause of truth he now desires to place a portion of this before English readers.

In doing this, he will avoid the extreme positions often taken by English writers on the one hand, and by Americans on the other. The one class has seen a Foot-rot in sheep which is manifestly dependent on local causes, and which they failed to transmit by inoculation; and they incontinently conclude that all such affections of the sheep's foot are similarly incommunicable. The American, on the other hand, has introduced a lame sheep into a sound pasture among a healthy flock, and finding that his whole flock speedily contracted Foot-rot, and that his hitherto sound pasture became pernicious to all sheep introduced into it, he has concluded, as illogically as the other, that Foot-rot is always contagious, and that every lame sheep is dangerous in the extreme.

The only rational hypothesis warranted by all the facts is, that although there are many cases of Foot-rot caused solely by mechanical irritation, destitute of any contagium, and incommunicable to other animals, yet there are other instances of the affection developing a principle by which the disease is conveyed to other stock; and that not only the affected sheep are dangerous, but also the pastures on which they have grazed, the roads they have traversed, the yards or folds where they have been sheltered, and the cars and boats in which they have been carried. It is the latter proposition only that demands any argument before English readers, and to the facts in support of this I will now direct attention.

For the sake of those who read English only, I may state a few facts observed in Continental Europe. The disease was first described by Chabert in 1791, as prevailing enzoötically in the flocks kept on the low damp borders of the Gironde and other rivers on the north of the Pyrenees. The affected animals were Spanish merinos; but as Foot-rot has never been seen on the dry table-lands to the south of the Pyrenees, it seems more reasonable to assume its generation on the damp, malarious French soil, than on the high bracing lands of Catalonia. To the present day this low, damp territory is afflicted with this and other affections of wet regions (notably, Specific Ophthalmia and Malignant Anthrax),

from which the Spanish plateaux are exempt. Naturally enough, Chabert overlooked the contagious character of the malady.

Pictet, writing in 1805, was the first to demonstrate this. He imported from Piedmont two hundred merinos, some of which were lame on their arrival, and mixed them with one hundred cross-bred sheep, with the effect of speedily communicating the malady to the latter; though the pasture was elevated and dry. The rams put to the sheep contracted the disease in the same way.

Gohier records the case of a butcher who bought two sheep which went lame from Foot-rot three days later, and infected a whole flock with which they were placed. Six other sheep got into the pasture with this affected flock, and were attacked soon after. He then took shreds of horn from the feet of diseased sheep, and bound them between the claws of healthy ones, with the effect of producing the malady in them.

Sorillon records the following:—"A flockmaster had forty-six sound sheep, two of which were rams; and not requiring his use, he sent one of these rams to serve a flock of thirty-six ewes affected with Foot-rot. In the course of a month he became very lame, and was returned to the original flock, sixteen of which were attacked in the course of two months thereafter. Next year the same proprietor purchased a sound flock of fifty-two, of which he was unusually careful; but the shepherd having allowed them to enter a pasture along with an infected flock, eight were attacked in the course of the next eleven days. The rest escaped by being carefully secluded. The next year he purchased sixty-four fine sheep, but allowed them to graze several days with an infected flock; and the result was that fifteen were attacked with Foot-rot in a fortnight. The fourth year he placed a flock that had been cured in a field with sheep that were so ill that many of them walked on their knees, and were little better than skeletons; and in a fortnight eleven of his sheep were attacked. Finally, in the fifth year, he bought twenty-six sound sheep, and gave the greatest attention to their feet; but at the end of a month, the shepherd turned into the pasture a sheep he had procured in the district, which walked lame a few days later, and infected seven others." Here the disease was

again and again produced by cohabitation, and checked even in the infected flock by segregation. Similar instances of infection by the use of a common pasture are recorded by Girard, Delafond, Yves, Felix, Dombasle, Letzius, Giesker, Fabre, Lecoq, Veilhan, Mathieu, Charlier, Reynal, and others.

More important, however, are the successful inoculation experiments of Gohier, Fabre, Veilhan, Reynal, etc. Fabre infected twenty-one out of thirty-two, by simply placing the matter on the sound skin at the coronet.

But, says the objector, these were manifestly cases of Aphthous Fever, the violence of which was expended on the feet, as it very commonly is in sheep. This objection long compelled the present writer to suspend his decision. For the introduction of the disease into a new flock was necessarily the sequel of the importation of strange animals that had been exposed in markets, on highways, or in public conveyances. The occurrence found a tolerable parallel in the yearly extension of Foot-and-mouth disease in Great Britain after the large autumn fairs. But in several important particulars it differs. *First*, it is communicated by sheep which have suffered from the disease for months; whereas the contagium of Aphthous Fever is not retained in the system for the same length of time, and the old ulcers that may be left upon the feet are non-infecting. *Second*, and more suggestive still, the Contagious Foot-rot is not conveyed to other ruminants, nor pigs, but sheep alone suffer. Not to multiply instances of divergence, these two alone should make all believers in the identity of the two affections go back and reconsider the grounds of their decision. Having done this, they will be prepared to consider the testimony of the New World with less prejudice than at first. I will select a very few examples of contagion in America.

Dr. Randall, LL.D., of Cortland, N.Y., in his "Practical Shepherd," says that one outbreak in his flock "occurred from some wethers affected with Foot-rot getting once among a flock of my breeding ewes." Another followed on a similar accident: "Half a dozen of my lambs and sheep jumped into the road when a lame flock was passing, and remained with them half an hour." Dr. Randall's farm, twenty miles distant from Cornell University,

is in a dry, healthy situation, and his sheep's hoofs never suffer from lack of care.

Mr. Myron Kassen, B.V.S., the first veterinary alumnus of Cornell University, brought under my notice a case that happened on his father's farm at Springville, among the Pennsylvania hills. A lot of sheep had been bought, and placed with the old flock on a sound, dry, upland pasture. Some of the new-comers were noticed lame; and the disease spread among the home sheep, and was only arrested by the most incessant attention to separation and dressing. Sheep have not suffered on this land before nor since, now over seven years.

Mr. Hiram Hand, a large flockmaster at Genoa, Cayuga Co., N.Y., informs me that when he formerly resided at New Lebanon, some infected long-woolled sheep, belonging to the Shakers, broke out and mingled with his flock of merinos. Very soon his merinos showed symptoms of the disease, which proved most inveterate and intractable.

One of the most extensive recent outbreaks of the malady, occurred in Iowa from 1864 to 1870. It was well known to have been caused by strange infected flocks which were driven from the east across the unenclosed prairie, where many of the farmers pastured their sheep; and those flocks only that roamed the prairie suffered, while others that were kept up in enclosed fields, though on precisely similar soil and food, escaped. Scab was propagated in the same way; and between the two, sheep came to be considered as almost valueless in the State. Through the kindness of three large flockmasters (Messrs. O. H. P. Buchanan, Robert Waugh, and Daniel Campbell), I am enabled to furnish the following particulars of the outbreak in Story Co., given in answer to questions,—a form which I will retain, to avoid any unconscious bias in the statement of the case.

1. How long had sheep been kept on this land, or in this district, before Foot-rot appeared? — Some three to six years.

2. Had fine-wools only been kept, or what other breeds?— Fine and coarse.

3. What was the date of its first appearance?—About 1864 to 1865.

4. Did it appear first or exclusively in fine-wools?—In fine-wools.

5. Did long-wools ever escape when mingling freely with fine-wools that were generally infected?—Was confined mostly to fine-wools.

6. How long had the first infected sheep been in the district when they contracted the disease?—The disease was brought from the east.

7. Was the season unusually wet or dry?—1864 was quite dry; 1865 quite wet.

8. Had wet seasons ever before given rise to overgrown, diseased, or ulcerated feet?—There was not any appearance nor complaint made.

9. Have they done so since without causing a general spread of the disease?—Wet seasons will sometimes cause sore feet, but it will not spread.

10. Have a similar season and management since had no bad effect?—Yes, in proportion to the number of sheep.

11. Had paring of the feet been as universal and frequent before the appearance of Foot-rot as after?—No.

12. At what season of the year did the first cases occur?—During the summer.

13. Did weather or season have any manifest effect on the progress of the malady?—Yes.

14. Was there any reason to suppose that the diseased sheep had eaten *ergoted grass*, *smutty grain*, or *sick wheat?*—No.

15. What proof is there that the sheep first affected had come in contact with strange (diseased) sheep, or with the ground on which such sheep had been?—The personal experience of owners.

16. Did any or all of the flocks that were kept secluded from the prairie and from adjacent *diseased* flocks escape?—Yes.

17. Did newly-bought *sound* sheep brought in contact with diseased flocks suffer, and how soon?—Yes, in about ten or fifteen days.

18. How long did the disease prevail in a particular flock?—Until all died or were cured.

19. Was there any manifest tendency to spontaneous recovery? —None.

20. Did the lambs born of *diseased* flocks contract the disease, and at what age?—Yes, so soon as they came in contact.

21. Did the lambs born of adjacent *healthy* flocks kept secluded on their respective farms escape?—Yes.

22. Is there any material difference of soil on the different farms or on the prairie?—Yes.

23. If so, is it more soft, moist, or organic on the farms or prairie on which the disease broke out or prevailed?—No difference.

24. Is there any difference in the natural or artificial drainage of the different soils, and does such difference bear any relation to the first outbreak or subsequent prevalence of the disease?—There is a difference, but it bears no relation to the disease.

25. Had any of the affected sheep sore mouths or udders?—None.

26. Did the disease usually begin in the space between the hoofs, on the heel, or on the skin above? Was the skin above the hoof ever implicated, and how?—Begins at the heel, between the hoofs.

27. Was the hoof entirely separated from the quick on the affected parts, or did the horn ever break up into loose, soft, spongy fibres, that tended to separate like hairs, and grew with great rapidity?—Separated from the quick.

28. Do you know of any attempt to convey the disease by rubbing the morbid discharge on the healthy skin or on a raw surface, and with what results?—No.

29. To what do you attribute the extinction of the disease?—To medicine and the knife.

30. Were precautions taken to disinfect barns, yards, and fields that had been infected? If so, what?—None to my knowledge.

31. How long did you find such infected places dangerous when disinfection had been neglected?—See 30.

32. Did cattle ever suffer from Foot-rot, or from sores round the top of the hoof, during its prevalence in sheep?—No.

33. Was the disease conveyed to sound sheep as easily during

the period of its decline in the district as when it first appeared?—Yes.

34. How long did it prevail on any one farm, and what was the date of its final extinction in the district?—From 1866 to 1870.

35. What is the present number of sheep in the district relatively to their numbers at the period of the outbreak?—About one-tenth.

36. Are the numbers more or less relatively to the area of enclosed land? Very much less.

37. Is the land more heavily stocked or less so? Less heavily with sheep.

I may add one or two more items furnished by my colleague, Mr. J. P. Roberts, Professor of Agriculture, who was then residing in the district in question, but who escaped the visitation by keeping his sheep in enclosed fields. Up to 1870, although six railways penetrated Iowa from the east, not one of them extended across it, nor even penetrated to the middle of the State. Flocks of sheep were therefore continually travelled across its prairies, from the various termini of the eastern lines of rail toward the Missouri river, for the supply of the more Western States. Story County lay directly on the line from the termini of at least two of these railroads, to the important stations of Sioux City, De Sota, and Council Bluffs, and was therefore abundantly exposed.

There were three brothers in the Waugh family, who occupied different farms, but held several valuable rams in common. The flock of Robert, running on the prairie, contracted Foot-rot. A ram from this flock, sent to serve a brother's ewes which had been kept in enclosures, communicated the disease to them; while the flock of the third brother, kept secluded from the prairie, and served by home-bred rams, escaped. Other instances of infection from breaking fences and mingling of flocks, I will omit.

When the disease was fairly developed, so earnest did the flockmasters become in its eradication, that if any one came upon a lame sheep on the highway or prairie, he did not hesitate a moment in laying hold of it and cutting its throat, thus extinguishing the virus in the extinction of life.

Finally, since 1870, when the local outbreak had been stamped out, the railways extended to the Missouri, and drovers were interdicted from driving across the prairie, the sheep in the district, though subjected to the same conditions of soil, season, and management, have developed no Foot-rot—or only, to use the reporters' words, "sore feet that did not spread."

Making allowance for the obvious missing of the true object of several of the questions, and for one instance (10, 11) in which question and answer, written on separate sheets of paper, appear to have got transposed, I would submit that the evidence is complete enough to warrant an absolute conclusion in favour of the doctrine of contagion.

Now, the grand truth to be observed in all these American cases, is the necessary and utter exclusion of all possibility of confusion with Aphthous Fever. Not only did these sheep mingle freely with cattle and pigs without transmitting the disease; but, as is well known, Foot-and-mouth disease has no existence on the North American continent. One definite outbreak of this malady took place in 1870; but this was introduced by two shorthorn cows shipped at Liverpool in the month of August, and which passed through the disease on shipboard; and though at first it spread widely in Canada, New York, and the New England States, it was extinguished within a year. The consternation it produced was proof enough, had any such been wanted, that it was a new and unique experience on American soil. This is the only recorded outbreak of Aphthous Fever in the United States. Then there are the further facts, incompatible with the hypothesis of Aphthous Fever, that there was no implication of mouth or mammæ, and that the affection lasted in a single flock for five years, and maintained its virulent qualities throughout; whereas Aphthous Fever would have disappeared in three weeks, or any remaining ulceration of the feet would have been non-virulent. The idea of the identity of the two diseases is therefore eminently ridiculous.

But it may be argued, in view of the fact that Scab was widely spread in the same manner, this was only a case of Foot-mange, —the known habits of the dermatophagus (symbiotis) corresponding to the comparative quiescence of the malady in winter.

But this, again, is contradicted by the facts. The acarus attacks the skin above the hoof, and, if allowed to increase, extends up towards the thigh. But this affection attacks the sub-corneous structures, and is confined to these, no matter how long it continues, nor how extensive the destruction of the keratogenous textures. This, therefore, must be excluded.

The same objections would apply to the doctrine, that an animal cule derived from the soil or herbage caused the disease (Morel). The harvest bug (*leptus autumnalis*), and the *leptus Americana*, attack especially the skin around the muzzle; and though the pasterns also may be involved, the sub-corneous tissues escape. The true *Chigoe* is unknown in the latitude of Iowa and New York. Again, if the affection were due to any insect derived from the soil or vegetation, it would attack animals only at particular seasons, when they had attained a particular stage of existence, would disappear in winter, would re-appear year after year on the same soil, and could never be rooted out of a locality by the simple dressing of the feet of diseased animals.

Is the contagium a fungus? This doctrine is favoured by several facts in its history. Many experienced stockmen are strongly persuaded that the disease tends to arise in a new flock, especially in summer, and when they have to pass through mud puddles containing much decomposing organic matter. The conviction is firmly rooted, that the disease developed in this way is contagious; but as sheep exposed to contact with flocks that have become footsore in this way, are necessarily subjected to the same pathognomonic causes, or at least to the peculiar season that has superinduced it in the first, such convictions, it must be conceded, are something short of actual proof. At present I lack instances of a disease produced in this way, having been propagated by simple contact after the lapse of a winter. It may be that they are frequent nevertheless. Equally inconclusive is the effect of different medicaments on the diseased foot. In the early stages nothing succeeds better than a solution of carbolic acid or chloride of lime—both potent mycocides. But if the disease is further advanced, and the fungus has presumably grown more deeply into the ulcerating tissues, we must resort to strong caustic solutions of chloride of zinc, chloride of antimony,

or sulphate of copper, which will cauterise the diseased textures and lay bare the deepest ramifications of the fungus, if we would hope for beneficial results. But these agents would equally repress flabby, exuberant granulations, constringe diseased, enlarged, and actively proliferating cells, check their morbid reproductive activity, and tend to a more restricted and natural condition and growth.

On the other hand, there may be a contagious organic germ, extrinsic to the body, and heterogeneous in its nature and growth, but yet not a fungus. But it seems to be altogether different from the germs of most specific contagious plagues, inasmuch as it does not appear to spread at all through the atmosphere, but demands direct contact, or mediate contagion through the ground, or other solid or liquid, in order to its transmission. The early death of the contagium when separated from the living body, is another deviation from the general character of specific fever poisons.

Another hypothesis, which appears to my mind quite as reasonable as any of the above, is that the cell elements of the diseased surface have themselves taken on unnatural potential energies, which they communicate to those adjacent, whether on the same foot or on that of another animal on which they have been implanted. How many instances of a similar kind can be pointed out, alike in pathological and reparatory processes! A simple prick of a bare white portion of skin is soon followed by a red swollen areola, extending to a varying distance from the original point of injury. If we remove the inflamed portion of skin, stain it, and prepare microscopic specimens, we shall find an enormous increase in the size and number of its nuclei, most marked in the centre, nearest to the seat of injury, and gradually diminishing as it recedes from this point. While but a few of the central cells have been directly injured in the prick, yet all within the areola have undergone the morbid changes, but only in a ratio proportionate to their proximity to the pricked and most potential pathonogmonic cells. The gradual exhaustion of the morbid agency becomes increasingly manifest outward, toward the periphery, where at last the healthy powers of the adjacent cutaneous cells are capable of overcoming and excluding the morbific tendency.

Conversely, a wound upon the surface has become indolent and inactive, so that it has remained *in statu quo*, without making the slightest progress for weeks in succession. The cells on the surface of the sore have no inherent power to develop into cuticle, and those around its margins have had their plastic powers so far impaired that they can no longer favourably affect those on the raw surface. Let us now engraft on the surface of this sore, one or more thin slices of healthy living epidermis, freshly cut from a sound portion of skin ; and in one, two, or three days, in all probability, the whole surface will be covered with a sound cuticle. Here the weak, impotent, and inactive cells are endowed with new plastic powers, by contact with sound epidermic cells in a state of strong plastic energy ; and the result is a speedy resumption of natural functions, and the reproduction of healthy cuticle. Again, in the case of injury to the skin above the margin of the hoof, how constantly is the tendency shown to the formation of irregular horny swellings, as if the epidermic cells, having had their vitality impaired, had acquired new powers of development from the adjacent horn-secreting cells! Again, in the case of inflammation of fibrous structures in the vicinity of bone, how contantly do we see extensive deposition of earthy salts, and calcification, outside the periosteum, simultaneously with the formation of true bone on its inner surface! Here, again, the original plastic energy of the nuclei of the connective tissue having been impaired, new tendencies and powers are derived from the nuclei of bone in their vicinity. Many other illustrations might be adduced ; but let these suffice.

In order to the manifestation of such beneficial or prejudicial plastic qualities, it is imperative that the cells should retain their vital activity. As the mucus, pus, blood, and other cells only retain their vital movements for a limited time after removal from the living tissues, and even then only when kept in suitable conditions of heat and moisture, so these lose their morbific properties soon after removal from the diseased surface, and above all when denied the conditions of warmth, moisture, and nourishment necessary to the maintenance of life. Hence, Foot-rot is most readily propagated in the warmth of summer, and when moisture and mud favour the temporary preservation of the germs ; while

its extension is much less marked in winter, when absolute contact is essential to transmission. In the same way may be explained the fact, that the desertion of an infected field for a month or two, and above all its exposure through the winter, renders it safe for sound stock at the end of this period, though it would have infected such sheep if turned into it at once. In the same way may also be explained the immunity of pigs, cattle, and horses from ovine contagious Foot-rot,—the vital nuclei of the sheep being much less compatible with those of another genus than with those of their own.

Having allowed myself to dwell at such length on this phase of the disease, I must forego all reference to any other. I even fear that, in entering the domain of speculation, I may have prejudiced the facts set forth in the early part of the paper. Let the reader then ignore, if he will, all theories as to the nature of the contagium, as these are liable to be changed with every new fact added to the science, and concentrate his attention on the facts themselves, which, however we may interpret them, must remain for ever true.

CASE OF ANEURISM OF THE POSTERIOR AORTA IN A HORSE.

BY J. ROALFE COX, M.R.C.V.S., LONDON.

THIS case is of peculiar interest, not only from its rarity, but from the fact also of the opportunity of acquaintance with the history of the horse during a long period prior to any special symptom arising in connection with the disease.

The subject was a light thoroughbred gelding, fifteen hands high, and aged. He had been in my own possession some four or five years, and, being a "pet," had very light service as a lady's horse by my daughter; when being otherwise exercised, he was generally led in hand, never carrying other than light weight.

He was perfect in temper, and very smooth in his paces; but when fresh was apt to give a bound and kick in play.

The first intimation of anything amiss with the horse arose in this way: Some six or eight months prior to death, at a time when he was only being exercised daily, it used to be reported to me that he became suddenly lame in one or other hind-leg—not always the same; and to such a degree that he had to be taken back to the stable. But whenever I saw the horse out, at next convenient opportunity after my hearing these accounts, he was invariably free from lameness. Shortly afterwards I had an opportunity of seeing him become suddenly lame as described. At this time, my daughter being from home, the horse was allowed to be at rest in his box, and all again appeared to be right with him. On return of the symptoms, and finding him become, after a quarter of an hour's ride, painfully lame in one hind-leg, and stiff in the hind parts generally, I determined to keep the horse at my place in London, for the purpose of investigating his case. During a period of several weeks I constantly tried him, and always with the same result. He would seem perfectly well, and come out of his stable without any manifestation of ailment; and whilst I was watching him being ridden to and fro, he would, after about ten minutes, begin to go stiffly behind, to straighten his neck and lose energy (his natural form being to curve his neck very much, and show spirit); if still continued in steady trot, he would then generally begin to perspire profusely, become painfully lame, and when stopped, the affected hind-leg would be acutely cramped and somewhat abducted. Generally within about ten or fifteen minutes all these symptoms would have subsided, and the horse again appear well as before, and sound when trotted out. Upon taking him to the stable after these trials, he nearly always put himself into position to micturate, and generally passed urine without much more difficulty than the cramp seemed to explain.

Finding nothing wrong within the bladder, and entire freedom from disease of the limbs in every part, I suspected the existence of a tumour of some sort which was impeding the circulation under excited condition of the same,—as resulting from exercise, and perhaps also irritating the nerves by pressure, at such times. On examination by rectum, I failed to discover any explanation of the condition, nor did I recognise anything exceptional in the

way of pulsation. I fancied unusual prominence of parts in the region of the kidneys, but could satisfy myself of nothing during life of a special nature.

The horse was destroyed, as I had decided never again to allow him to be used. On a *post-mortem* examination, everything was normal up to the one point of exposing the psoæ muscles; and there, centrally situate, was a tumour which looked like bone, and gave a sound of hardness on tapping with the knife. This, on further dissection, proved to be an aneurism of the posterior aorta—fusiform, measuring about six and a half inches in length and about eight inches in circumference (the dried specimen, as at present, being but little less than these dimensions). The walls are, in places, extremely attenuated and transparent, almost to rupture; and a portion of the sac is surrounded by a tolerably firm bony shell. The tissue altogether is most remarkably greasy. The drying preparation now, after several weeks, is as if it had been recently smeared with oil.

Thinking back upon every circumstance which might form a link in the history of this aneurism, I can recall but one other circumstance, which may or may not have been connected with it—which is, that some three years ago or more, whilst I was riding by the side of this horse in Rotten Row, he suddenly began to flag, and to go so languidly that we at once returned home—a distance of half a mile.

On that occasion, upon his return to the stable, and for some days afterwards, there must have been some peculiarity, because I remember I made several careful examinations of his heart; and although I could detect nothing to corroborate disease of that organ, I was fidgety about it, and would not allow him to be ridden. But all ground for misgiving must have soon passed off, because he was again taken into use, and nothing whatever amiss was noticed until the advent of the peculiar lameness of the hind-limbs which I have described.

The heart was perfectly healthy, but rather large for the size of the animal. There was only one other condition, besides the aneurism, at all unnatural; and that was remarkable. The mass of muscles in the psoas region were so unusually developed, that they exceeded in bulk those of a full-sized cart-horse, with which

they were compared ; they were florid and healthy in appearance, and not increased by fat.

[Mr. Cox has kindly forwarded this interesting pathological specimen for our inspection. The aneurism is tolerably uniform in dimensions, and about the measurement described. The dilatation commences abruptly at one end, where there is a tendency to sacculation. The wall is remarkably attenuated along one side, and rupture must soon have occurred if the animal had not been destroyed. There are several large, but unconnected, calcareous plates, with others of smaller size. The calcification is evidently secondary to chronic alteration of the arterial tissue, resulting from Atheroma. There is no trace of muscular coat, and the whole has been undergoing fatty degeneration for a long period. Even now, though denuded of all the surrounding tissues, and nothing but a thin shell, scarcely the thickness of the distended bladder of a sheep, remains, it is quite oily.

It is not at all improbable that the anlurismal sac would have ruptured long before the animal was destroyed, had it not been for the support afforded to the diseased vessel by the subjacent psoœ muscles.

The case possesses much interest to veterinary surgeons, from the symptoms the animal exhibited, and which, as they were noted so frequently by Mr. Cox under the most favourable circumstances, may be taken as pathognomonic of this particular lesion in the abdominal portion of the aorta. The opportunity for studying the symptomatology of aortic aneurism is rare indeed, and the diagnosis is generally so obscure that this condition is seldom suspected until it is found to exist when an autopsy is made. In those cases which are recorded in foreign literature, aneurism of the posterior aorta has been marked by loss of vigour in the animals affected, stiffness in moving the hind-quarters, the breathing easily disturbed by rapid exercise, and distress manifested ; dropsical infiltration of the posterior limbs, intermittent lameness, and signs of paralysis. But it is acknowledged that these indications are not very characteristic, and several of them are also observed in embolism of one of the branches of this artery.—Ed. *V. J.*]

AZOTUREA OR NITROGENOUS URINE.*

BY JOHN LAWSON, M.R.C.V.S., MANCHESTER.

DURING the last two or three years I have had a good many cases of this disease; and thinking it may interest some of your readers in other localities, I have just jotted down a few notes with regard to one of them. On the 10th of March a bay mare was brought to our establishment; she was the property of a firm in Oldham, who had sent her to Manchester on the above date with a load of goods. The mare was considered quite well on leaving home; and nothing was noticed amiss with her until she happened to wait for about half an hour at a warehouse door. when her driver's attention was drawn to the manner of her standing on her hind-limbs—viz., knuckling over. On attempting to move her, it was found that she had only partial control of these limbs. With great difficulty he got her out of the cart, and brought her to our infirmary, a few hundred yards distant. So rapid was the loss of power in her hind-quarters, that she fell twice while travelling the length of the yard; and the second time she could not recover herself, and we were compelled to draw her into a loose box.

Symptoms. — Increased breathing; acceleration of pulse; sweating profusely; making frequent but vain attempts to rise, attended with much excitement, but no appearance of coma or stupor.

Treatment.—Examined the bladder per rectum, and found it to be very much distended; removed a considerable quantity of dark-brown or coffee-coloured urine, the withdrawal of which was attended with pain and groaning. Gave, internally, aconite several times, and a pint of linseed oil; applied hot blankets to the loins, turned her frequently during the night, and ordered her, for diet, gruel, linseed mashes, etc., etc.

11th.—She was quieter, less restless, and more subdued; the pulse had decreased. Tried to get her up by means of the slings, but although she could move her legs she could bear no weight on them; she made slight attempts to micturate.

* Called by Haycock "Hysteria."

Removed the urine by catheter; it was not so high coloured; continued the hot cloths until the afternoon, and ordered her sloppy diet. In the afternoon we attempted to get her on her legs, but there was very little improvement; applied mustard to the loins and quarters, and during the night hot cloths, turning her over frequently, The urine to be removed with the catheter.

12th to 14th.—Similar treatment to the above was pursued, though with little marked improvement; and the symptoms continued more or less the same.

15th.—General improvement; got her up by means of the slings, and she stood upon her hind-legs for some time, during which she voluntarily micturated; the urine was of a lighter colour, but still dark; appetite considerably improved. Continued the same treatment, diet, etc., and the hot cloths to the loins.

16th.—The mare continued to improve; she walked with assistance, and micturated with ease; the appetite was good, and she seemed altogether more lively; indeed, she made such rapid progress, that in a fortnight she was able to leave for home.

ON THE PATHOLOGY AND MORBID ANATOMY OF THE STOMACH.

BY JOHN HOWARD, M.R.C.V.S., WOOLWICH.

(*Continued from page* 15.)

WE have expressed a firm and decided opinion that Acute Gastritis, as a disease *per se*, can only be induced by mechanical irritants applied directly to the mucous membrane of the stomach, and which defy all attempts at expulsion, either upwards or backwards.

As a further illustration of the subject, we shall give another case in point, which occurred in a dog; as it will assist in demonstrating the very intimate connection of the stomach with the great nervous centres of both animal and organic life, and

also afford a good insight into the comparative pathology of the disease.

On the 16th of October, 1874, we attended a valuable Esquimaux dog, the property of a gentleman. He was found to be very dull, and had been hiding himself away in corners to elude observation or interference; his favourite position was on his belly, with hind-limbs apart; pulse 150 per minute, and thready to the fingers; nose warm and dry; had vomited all food given him. We were informed that he had a fit shortly before our arrival. A purgative was administered, stimulating liniment applied to the abdomen, and an enema of warm water thrown up; and he was left Tinct. Aconite m. v. in aqua ℥vi., a tablespoonful to be given every two hours.

17th.—Symptoms reduced in urgency, pulse down to 120, irritable in character; no recurrence of the fit. We entertained some hopes of recovery; still vomits all food; no action of bowels. Repeated the purgative and enema; the aconite and water continued in the same proportions as before. He became worse in the evening, and was brought to our establishment, where he remained. Symptoms of serious cephalic derangement were now evident. He wandered about with a stiff gait; appeared not to know what to do with himself; he had occasional jerking croup-like spasms of the stomach and œsophagus, with eructations of gas. As night came on, he was attacked by a severe epileptic fit, and writhed about frothing at the mouth in terrible convulsions.

19th.—Bowels still torpid, but he micturates involuntarily, the urine passing off apparently without his knowledge; the *sphincter vesicæ* appears to have lost its power of contractility, permitting the urine to dribble away almost as soon as secreted. He gets into dark corners to avoid the glare of the light; is stiffer and more straddling in his movements; the jaws are maintained firmly together, and require considerable force to open them when medicine is given; the tail is raised occasionally, and tetanic symptoms may be said to be well established. Gave three teaspoonfuls of beef-tea, which appeared to excite the croupy spasms, and brought on another convulsive fit; he slavers and foams at the mouth almost continually. Gave Assafœtida

Infusion and Quinia Sulph. et Camph. in aqua (small doses of each), and an enema of Ol. Lini. His eyes were fixed in their orbits all day, the lids rarely moving. It is now evening, and he crawls about on his belly, vomits all nutriment and medicine given him, does not answer to his name, and has lost all power of recognition. He has had three violent fits to-day. We generally find him hanging back at the full length of the string attached to his collar; and although often removed from that uncomfortable position, he again resumes it. He died about twelve midnight, in a very strong convulsive fit. This poor creature generally gave vent to a deep wail, as the fit seized him.

He was a young dog, and weighed about ten pounds.

Autopsy.—On laying open the parietes of the abdomen, the back of our hand came in contact with a round, hard substance, which, on examining the interior of the stomach, proved to be a smooth cobble stone, about the size and shape of a pigeon's egg, weighing one ounce avoirdupois: it was lodged at the pyloric end of the great curvature. The mucous membrane was inflamed underneath and all round where it had lain, extending to and involving the pyloric orifice. The lungs were congested, and gorged with dark blood, the inferior edges of the lobes being of a leaden hue. All four cavities of the heart were distended with the vital fluid. Two pieces of white fibrous material, with a little flesh attached at one end and a bit of yellowish fat at the other, were found loose in the right ventricle. These proved to be *Cordæ tendinæ*, with a portion of the apices of the *Carnæ columnæ* attached at one end, and a deposit of adipose material, sometimes found adherent to the heart's valves, at the other; they appeared to have been ruptured, or torn from their natural situation, by the violent convulsive spasms of the organ during the last fit,—death appearing to have been accelerated by tricuspid insufficiency permitting regurgitation, and causing deficient aeration of the blood in the lungs.

In considering the comparative pathology of those two cases, the first circumstance which must forcibly strike the scientific observer is the wide difference displayed in the riritability of the nervous system by herbivora and carnivora.

In the horse, when in a healthy condition, we have a pulse varying from thirty-two to thirty-eight beats per minute, which for the sake of convenience we will call thirty-eight degrees of nervous polarity; while in the dog we have a normal pulsation of from ninety-eight to one hundred per minute, which we must term the same number of degrees of polarity or nerve sentiency. It is on these physiological grounds alone that we can account for the greater intensity of the symptoms in the carnivorous animal; which also bears a close relation to the ratio of intelligence capable of being displayed by each in their relative capacities. We see in the dog a creature highest in the scale of intelligence among our domesticated animals; he is capable of understanding not only our commands, and executing them by himself, but of interpreting the meaning of our very looks, and, to a great extent, parts of our simple conversation.

That the dog possesses reasoning powers of an inferior order, we are quite satisfied, from direct experiment and close observation; he is not a creature of mere instinct. We would remark, in passing, that this word *instinct* is a very ambiguous term, and the attempts made by lexicographers to define its meaning are very misty—some of their explanations amounting to utter impossibilities. In short, the word must have been invented to please the presumptive arrogance of man, who would deny to all creatures one tittle of the faculty he himself enjoys to such perfection.

Whoever possesses an intelligent dog of the colley breed will see these characteristics best marked.

We have sat motionless in our chair for half an hour at a time, with one of these animals peering up in our face, and, without uttering a word, have tried the mere effect of changes of countenance only. The animal invariably followed every expression with the ability of a most consummate courtier.

When the features were at rest, he regarded them with a steady quiet gaze; a slight smile caused a corresponding one; a full smile a similar increase, with a wag of the tail; a steady laugh produced expressions of delight; a frown an immediate look of seriousness; an alarmed countenance caused an instantaneous movement towards the door, with a low growl; an appearance

denoting pain elicited a look of sympathetic inquiry, with his paws on our knees; a deep frown brought him crouching to our feet; a very angry visage caused him to slink quietly away. We have possessed dogs which have performed the most sensible and amusing actions of their own accord, and which actions, without reasoning powers, would have been impossible; but a further detail would be out of place.

Some horses are capable of high training, but none understand the expression of man's features alone; neither can they be trusted to perform the long and difficult tasks of the canine species; nor do they ever reach the pitch of linguistic intelligence, faithfulness, and affection exhibited by dogs for their masters. It may be said that these faculties are developed in the same ratio to the amount of fine nervous sensibility possessed by each, —which is in the horse and dog respectively as 32 and 38 are to 98 and 100. In fact, the dog possesses nearly three times the amount of nervous polarity of the horse, with a relatively proportional increase in brain-power, and, consequently, nervous susceptibility when suffering from the pangs of disease; as shown in the last case by the occurrence of convulsive fits, brain complications, avoidance of light, and tetanic symptoms, which did not obtain in the horse, although labouring under the same complaint (in a more severe form), in consequence of his nervous system having but little more than one-third of the nervous polarity of the former.

When the stomach is inflamed, the salivary glands become sympathetically affected; no doubt caused, to a great extent, through the numerous anastomoses of the *par vagum* with the cervical and jugular ganglions of the organic system of nerves. They at first suffer from irritation, which passes on to partial congestion; causing exalted functional derangement, and abnormal secretion of thick, ropy saliva, which is excessive in quantity, depraved and altered in quality, and incapable of acting on the starchy material of the food as a saccharine producer. This depraved secretion, uniting with the buccal mucus, which is poured forth in great excess from the same cause, constitutes the salivation so well marked in the latter stages of Gastritis and Gastro-enteritis.

Indeed, we look on these phenomena at all times when present, little or much, as highly diagnostic of stomachic derangement in both horse and dog; and results have always proved its correctness. Thick, viscid, slimy saliva is met with in various degrees, in cases of indigestion in these animals; beginning with slight instances of disordered stomach often met with, and gradually increasing until Chronic Gastritis results. When the last-mentioned disorder has established itself, the animal is attacked from time to time with flatulent Colic; and during this critical period Acute Gastritis, or Gastro-enteritis, is liable to supervene, should mechanical irritants, such as *bots*, etc., etc., however slight, find their way into the viscus.

Stricture, or thickening of the pyloric orifice, has in our practice proved the means by which Gastro-enteritis has been set up in an animal which had suffered from Chronic Gastritis for some time previously. A pure case of this description occurred with us in an aged pony, in the month of April last.

Chronic Gastritis in the horse usually terminates in (so-called) Enteritis, which is the form generally recognised by the practitioner, and often referred to other causes for its origin—as drinking cold water when heated, etc., etc.

It is commonly caused by continual irritation from the presence of alimentary substances which, owing to a chronically inflamed stomach, have not undergone the necessary process required by the system in the first stage of digestion, and which imposes on the small bowels an office they are incapable of performing—viz., checking the excessively depraved acidity, reducing the aliment to an alkaline form, and secreting the chyle. When the mucous membrane of the intestines becomes deranged, which it generally does not until subjected to a long course of irritation, and has made manifest its outraged condition several times by attacks of Colic, then does inflammation at last begin; and this produces additional acid to that already contained in the irritator, so that Enteritis ensues. On this account, practitioners will find, if they can get at their case in good time, that treatment by alkalies will be the most successful—sedatives being worse than useless: indeed, they are favourable to dissolution.

The only reason why alkalies prove sedative to the irritated

mucous membrane, is because they check the formation of acids, which in internal inflammations are rapidly produced. If the case has passed beyond a certain time, the true secretive structures of the portion of bowel attacked being destroyed, as is often the case, all treatment will prove unavailing. In the ordinary *post-mortem* examinations conducted by the practitioner, with a knacker acting as prosector, the whole of the attention is usually directed to the mortified bowels; the condition of the stomach in Chronic Gastritis being passed over almost unnoticed, from the fact that many forms of this disorder are not recognisable by mere superficial observation, but require careful attention, and research with the forceps and scalpel, also at times with the microscope.

We observe a close similarity in the symptomatology of the two cases before described. Great dulness, salivation, continual eructations, antiperistalsis, involuntary vomition, absence of defecation, and a sudden violent termination in death, are characteristic of both.

The presence of convulsive fits, Amaurosis, cephalic derangement, and Tetanus in the dog, can only be accounted for on the grounds before mentioned. The nervous system of the canine species is more highly strung, and more exquisitely sensitive to the pangs of disease, than that of the equine tribe: the *medulla oblongata* of the dog showing a hyper-sensitiveness to the irritative effects of impressions conveyed to it by the pneumogastric nerves and sympathetic system.

Although the lesions found in the horse were immeasurably more serious than in the dog, yet the sufferings of the latter were much greater than the former; but in both continuous antiperistalsis was observed, which indicated a vain attempt on the part of the system to remove the cause of the mischief—the *bots* in the one, the "cobble-stone" in the other.

With regard to the *post-mortem* appearances of Gastritis, Andral says:—"The stomach was strongly contracted, so as to be nearly the size of the transverse colon. Its inner surface, over nearly its entire extent, was of a brownish-red. This colour had its exclusive seat in the mucous membrane, which had become in every part very thick, and was at the same time very

friable. On its free surface there was discovered a multitude of black points, which seemed to have their principal seat in the villi; however, beneath these the body of the mucous membrane was red, and as it were penetrated with blood, and in several points it resembled pulp without any consistence." The stomach of the horse before mentioned by us had suffered this contraction just alluded to; but the mucous membrane had undergone a more severe phase of inflammatory action, the black points mentioned by Andral being for the most part desquamated, giving the appearance of coffee-grounds; and the organ had suffered from such excessive hyperæmia, that effusion of blood had taken place into the *cul-de-sac*, and which was found after death in the form of black coagula and serous exudate.

In another case Andral says:—"The parietes of the stomach were remarkably softened; its tunics, from the peritoneal to the mucous, no longer had any consistency; they gave way under the fingers as a sort of pulp. Wherever this softening existed, the parietes of the stomach were of a dark-red colour, and as it were, ecchymosed." This latter statement bears great relevancy to our first case; the soft pulpy condition being well marked along the great curvature, which was found to be the seat of an extensive rupture, and which without doubt produced it on the abdomen being brought in violent contact with the ground, when the animal made her unexpected rush to the door, and suddenly fell dead.

Abundant granular exudation, stained by exuded hæmatosine, as well as loss of investing epithelium, and wasting and breaking up of the glandular tubuli, have been stated by eminent medical authorities to be present as the results of Acute Gastritis. These effects strictly coincide with the appearances witnessed by us in the horse, from the mechanical irritation of the larvæ of the *œstrus equi*.

The stomach of the horse does not possess that highly exquisite sensitiveness to the presence of irritants applied to its mucous membrane, or through the means of its nutrient and secretive blood supply, which is observed in man and some carnivora. But the digestive organs of the horse to a great extent suffer from the poison, or contagium, developed in the blood from

severe attacks of the various forms of Epizoötica, known under the general term of Influenza, and is seen to occur in cases which seem "to hang fire," as it were, during the regular transition to convalescence. Where the constitution is enfeebled by old age or former disease, the *vis medicatrix naturæ* of the system is unable to cope with the contagium contained in the blood. This poison concentrates itself in the stomach and small intestines, vitiating their secretions, and giving rise, through the medium of the chyle, to a diseased state of all the secretions of the body, which generally culminates in *Glanders*, or its synonym *Farcy*, or both combined. We have often encountered such instances in practice.

This has its prototype in man, who suffers from idiopathic attacks of Gastritis, as an after-result of malignant blood diseases, such as Epidemic Cholera, Rheumatism, etc.

This points to the great value of a well regulated antiseptic and tonic plan of treatment, after the crisis is past. Old horses suffer much from a chronic catarrhal condition of the stomach; and such cases are not commonly brought to the practitioner, save by the wealthy; unless the appetite fails, or becomes extremely capricious, with loss of condition—by which means only the owner's attention is drawn to the animal. Such cases are troubled with secretions of viscid, glairy mucus about the inner canthi of the eyes; the saliva is of an abnormal consistency, or may be sourish; at times only a rather high smell is noticed, with an unthrifty appearance, and a small, irritable, weak pulse. Such animals are very liable to Colic, and often die of Enteritis.

Rokitansky enumerated the morbid anatomical character seen in his patients, as follows:—"A dark reddish-brown, or slate-grey, or even blackish-blue discoloration of the mucous membrane; copious secretion of a stone-coloured, occasionally glassy, pituita; thickening, increased condensation, and induration (*i.e.* hypertrophy) of the mucous membrane, which presents itself in various degrees: (*a*) in the lowest degree the mucous membrane shows simply an increase of thickness and hardness in its tissue; (*b*) in a higher degree it presents, in addition to its increased thickness, an uneven, racemose, or warty surface—a surface *mamellonée*; (*c*) in a still more advanced degree it forms

prolongations in the shape of permanent firm folds or polypus. The muscular coat and submucous cellular tissue also participate in this hypertrophy in various degrees. The pyloric portion is the chief seat of Chronic Catarrh; and it is there that hypertrophy of the mucous and other membranes is most prominent."

The slate-grey colour here mentioned, of the mucous membrane is often met with in the horse, and the blackish-blue colour occasionally; a warty appearance has come under our notice, and hypertrophy of mucous and muscular tissue at the pylorus, with the polypus-like folds we have repeatedly seen, and on two occasions at the cardiac orifice also, without these prolongations of polypus last mentioned. Hypertrophy at the pylorus is often met without them.

The symptom of "starting back as if frightened, without a cause," we have found diagnostic of this state, as mentioned by others. These conditions, then, are the result of Chronic Gastric Catarrh in the horse, as well as in man, although generally not quite so well marked; and it is often found, as Andral observes, that "the mucous membrane may appear, after death, in a perfectly natural state as discernible to the eye,—the subjacent tissues in these cases being more or less affected." He also speaks of a "grey slate-colour," and sometimes of a "dull white, milky aspect," which those who have examined many equine stomachs cannot fail to recognise. Stricture of the cardiac and pyloric orifices in the horse, frequently happens as a result of muscular hypertrophy alone. This alteration is favoured by the two extremities of the organ receiving the greatest share of muscular fibre in their walls. The pylorus is the most liable of these two orifices to the change; this portion of the organ being the most highly sensitive and vascular during digestion, and therefore in a more favourable condition to become hypertrophied.

In old emaciated animals, atrophy of the gastric walls is generally observed, with relaxation. This is often the result of continuous over-distention with food, and other causes to which we shall refer the reader in a future paper.

The question has been asked, "Why does rupture always take place at the great curvature?" But no attempt seems to have

been made to give a satisfactory answer. When the stomach has become relaxed from continuous over-stretching of its walls, this portion suffers most from weakness and attenuation of its muscular coats; and it is here where the mucous membrane, as a result of chronic disease, is found thinnest—it being in some instances reduced to the dimensions of a transparent and extremely fine web.

In a state of health, the *cul-de-sac* is the thinnest part of the gastric parietes; and from its pendulous position, the great weight of food, often excessively impacted into the viscus, falls. The extra-muscular layer present around the cardiac and pyloric portions strengthens these parts against the accident of *rupture;* and from their close contiguity with the lesser curvature of the organ, they materially strengthen this, the *superior portion,* through part of the oblique muscular layer being reflected over it. The lesser curvature, owing to its shortness, possesses greater strength, and with the two extremities forms the base, or traction points, upon which the myological structure contracts and peristaltates. So that it will now be seen that, even in health, the chances of rupture occurring in any other portion than the great curvature are exceedingly improbable—we might say almost impossible; and this considerably more so, when the walls of the stomach at this portion are reduced in thickness and strength by atrophic changes, and chronic degeneration of a fatty, pulpy character, affecting both the mucous, submucous, and muscular tissues of the *cul-de-sac.*

Before closing this paper, I would respectfully observe to any member of the sister profession whose eye these pages meet, that in those instances where human patients die in convulsive epileptic fits, is it not possible that death may result sometimes from valvular insufficiency, caused by ruptured *Cordæ tendinæ,* as witnessed in our canine patient before mentioned?

(*To be continued.*)

HEMIPLEGIA.

BY REES LLOYD, DOWLAIS.

HAVING attended a mare affected with Hemiplegia in the summer of 1873, and finding that but few cases of this form of paralysis, as affecting the horse, are on record, I am induced to send you a note of the case for publication, should you deem it of sufficient interest to the readers of the *Veterinary Journal*. Briefly, the history is as follows:—The animal, a grey, half-bred cart-mare, four years old, was bought by her owner off grass, and soon after returning home suffered from Catarrh, with an obstinate cough, until the onset of paralysis; although she fed well, and was very cheerful. She was well taken care of, regularly and carefully fed by the owner, and quietly ridden for three or four miles daily. One day, during exercise, she was noticed unsteady in her gait, inclining the head sideways to the left, and continually steering towards the pavement in spite of the efforts of her owner. When brought to the stable, which had a step at the doorway, she was unable to lift her leg on the near side without assistance.

Immediately on entering the stable she was much excited, and when stirred made oscillating movements; she lay down on her near side, with the head extended.

There was considerable trouble in handling her, as the stable was so small that a man could not remain with her when the door was closed.

The symptoms were as follows, up to the period of convalescence:—

April 11th, 12 a.m.—Visible mucous membranes injected; mouth hot; skin normal; sensibility impaired on off side; urine normal; fæces dry and scybalous; recumbent posture; great excitement; inability to move, save legs; pulse 40, normal; dysorexia.

9 p.m.—Pulse 44, soft; temp. 101·6°; urinary bladder not distended, but pressure on superior arch of vagina caused powerful contraction of sphincter ani, followed by expulsion of fæces, and pain; otherwise, as before.

12th, 12.30 a.m.—Pulse 60, small, feeble; temp. 101·8°; otherwise, as before.

8.30 p.m.—Much the same; pulse 72, feeble.

13th, 10.20 a.m.—Pulse 84, feeble; temp. 102·8°; feverish; much depressed; sighing; pain on using catheter.

7.30 p.m.—Pulse 80, feeble; temp. 102·6°; occasionally uneasy; inability to raise head; otherwise, the same.

14th, 10.15 a.m.—Pulse 90, feeble; temp. 103·8°; inability to expel fæces; otherwise, the same.

9 p.m.—Great excitement; has nearly reversed her position by one violent effort; failed to examine her carefully; gave an enema of Belladonna.

15th, 11 a.m.—Pulse 80, feeble; temp. 104·6°; visible mucous membranes much injected; mouth hot and dry; fæces normal; urine turbid, deep-coloured,—both voided voluntarily; has been calm since the injection of Belladonna.

9 p.m.—Pulse 80, feeble; temp. 104·6°; slight muco-purulent discharge from nostrils; otherwise, as before. With great difficulty she was slung.

16th, 7 p.m.—Pulse 80, feeble; temp. 104·4°; muscles of near side somewhat relaxed; at times spasms of a clonic character; the anterior part most affected; the neck contorted, and hanging near to the ground on the left side; inferior lip drooping, near side. Failed to examine eye, owing to the tumefied eyelid. The whole of the near side helpless, and the animal resting entirely on the slings.

17th, 11.45 a.m.—Pulse 80, feeble; temp. 103·6°; mouth humid, less hot; thrusts head in manger, and eats a little sideways.

9.30 p.m.—Pulse 70, less feeble; temp. 103·8°; thin mucus discharge from nostrils; otherwise, as before.

18th, 12.30 a.m.—Short cough; otherwise, as before.

8 p.m.—As before.

19th, 4.30 p.m.—Sloughing of integuments on hip, ribs, and temporal region; otherwise, as yesterday.

20th, 7 p.m.—Pulse 65, strong; temp. 102·8°. The animal assumes a better position; bears slight weight on near limbs; brings head more erect; appetite capricious.

21st, 6.30 p.m.—Pulse 65, strong; temp. 103°; otherwise, the same.

22nd, 6.30 p.m.—Pulse 65, strong; temp. 104°; troublesome, frequent, moist cough; otherwise, the same.

23rd, 4.30 p.m.—Removed from slings; moves well.

24th, 6.30 p.m.—Pulse 72, smaller than before; temp. 104·8°; otherwise, the same.

26th, 8.30 p.m.—Pulse 72, soft; temp. 104·8°; cough the same; during deglutition muco-purulent clots are voided from nostrils; aspect livelier; appetite good.

28th, 9 a.m.—Pulse 70, strong; temp. 104·2°; improving.

30th.—Pulse 60, strong; temp. 104·2°.

May 3rd.—Pulse 60, strong; temp. 102·6°; appetite capricious.

5th.—Pulse 55, strong; temp. 101·6°.

17th.—Discharged—cured.

Treatment.—Venesection from jugular; aloetic purgative; sheep's skin to the back; enemata of camphor, belladonna, chloroform; brandy. During convalescence: strychnia, half-grain doses, combined with sulphate of iron and powdered cinchona. Fomentations and solution of zinc chloride to wounds; use of catheter to relieve bladder; quietude.

Diet.—Gruel, carrots, grass, etc.

The mare rapidly gained condition from this time. She now works on a farm, has a fine strong colt with her, and has not been ailing since.

Professor Williams states, in his "Principles and Practice of Veterinary Medicine," that "when disease affects one side of the brain, the paralysis is on the opposite side of the neck and trunk, but on the same side of the face." I believe his statement; but in this case we have a remarkable exception.

SERVICE IN THE ARMY.

BY "UBIQUE."

IT is difficult to understand how the army is supplied with veterinary surgeons, considering how few are the inducements held out to young gentleman to offer themselves for examination; and any one cautioning those who contemplate entering the Army Veterinary Department to "look well before they leap" would do them good service.

A few young fellows are tempted, some by the glitter of the military mirror, others by different inducements, to think service in the army a very fine thing, and consequently do their utmost to gain the right of wearing uniform. Those who succeed in this endeavour are generally pleased, to a certain extent, with their position for a short time; but how short-lived is their pleasure! They soon discover the Dead Sea nature of their apple. While on probation, the young veterinary surgeon can manage, with strict economy, to rub along pretty comfortably, because, as a rule, his expenses are not great; but when confirmed in his rank he sees how he has been deluded. His pay of ten shillings a day scarcely suffices to cover the ordinary expenses of mess-bill, servants' wages, washing, etc.; and unless he has private means to help him on, he is in a perpetual state of comparative poverty. He has to keep two horses—to do which he receives a certain sum as forage allowance; but this is altogether inadequate. In cavalry regiments this allowance is not given, although the horses have to be kept just the same; but, instead, a deduction is made from the already small pay, and the chargers are fed by Government. Why this should be, is known to the authorities alone. Certainly, no reasonable man can understand it.

These disadvantages need not be entered into further at present—they having been clearly explained by "a Veterinary Surgeon" in the May number of the *Veterinary Journal*. Let us, however, proceed to look at things as they are in India.

Some veterinary surgeons having heard of the opportunities of saving money which India is said to afford, are induced to

try their luck in that part of the world, with the hope of replenishing their empty purses. But again disappointment awaits them. They find on their arrival that they are entitled to draw, as pay, the sum of 377 rupees 8 annas *per mensem* (or at the present rate of exchange, about £31 of English money). Out of this they have to provide themselves with and keep two horses and a tent, pay a mess-bill which seldom amounts to less than 150 rupees; servants' pay and house-rent another 100 rupees, and various other expenses peculiar to India—together absorbing nearly all, if not the whole, of their pay; so that at the end of their first year they find themselves very much in the same condition as at its commencement. And be it understood that there are no allowances similar to those at home for travelling or encamping. When journeying by rail, all expenses other than those allowed by the travelling-warrant must be borne by the officer himself; and when marching he has to provide his own carriage, without compensation.

Expenses are rapidly increasing, and the rate of exchange decreasing; but the pay remains as it was ten years ago. Horses which then could be procured for 900 or 1000 rupees, now cost 1200 or 1500 rupees; and the ordinary country-bred animal, which used to be bought for 300 rupees, is not now to be had for less than 500 rupees.

After five years' service the veterinary surgeon receives an increase of pay; but what a miserable amount—18 rupees *per mensem!*—making his total monthly pay 395 rupees 12 annas 3 pie, on which he remains for another five. A surgeon after six years gets a substantial addition; for he then obtains the relative rank of captain. The veterinary surgeon, however, does not get this until he is promoted to first class; to which, if he be fortunate, he attains after about eleven years' service.

There are scarcely any chances of obtaining extra pay for extra work; and inspection of Government cattle without further remuneration is required; and, in cases of epizoötics, native cavalry horses also.

All these unhappy circumstances tend to make service in the army a very unsatisfactory business; and to those who contemplate trying it, it is well to say "Don't"; or, at any rate, "Wait

a little until things have improved." A new warrant has been promised for a long time, and it is to be hoped that when it does come it will be satisfactory; but until it is published and approved of, young veterinary surgeons would be wise to remain civilians.

EQUINE DENTISTRY: THOMPSON'S TOOTH SHEARS.

BY J. B. MARTIN, M.R.C.V.S., ROCHESTER.

IT cannot be denied that some of the most troublesome and baffling cases which the veterinary surgeon is called upon to treat, are those in which the dental apparatus of the horse is more or less involved. From the great length of this animal's face, the narrowness of its mouth, the powerful muscles of its jaws, the great size of its molar teeth, and the amazing firmness with which they are implanted in the alveolar cavities, operations upon these organs offer serious difficulties in many instances, —and not unfrequently these difficulties are insurmountable. More particularly is this the case with the molar teeth situated towards the posterior part of the jaws. There, extraction of a diseased tooth, or excision of one which has become overgrown, is a task of no ordinary character, and one which makes us often pause before we undertake it.

The occurrence of irregular molar teeth is by no means rare; and every now and again we meet with exceptional cases in which nearly the whole of a tooth has grown far beyond the level of its fellows on the same side of the jaw, and has excavated a large carious hole in the corresponding part of the opposite jaw. The indications in such a case are, of course, the removal of the superfluous growth; and this is rendered urgently necessary from the fact that mastication is seriously interfered with, the animal suffers pain and loses condition, and not at all seldom the disease of the bones makes the case an unpleasant one in every sense of the word. Carrying out the indications for treatment to a satisfactory termination has not always been my lot in such cases, notwithstanding my having procured the

most approved dental instruments, and especially Mr. Gowing's tooth-chisel; and I have on several occasions been much chagrined at the failure of these to accomplish the desired object.

In one of the early numbers of the *Veterinary Journal* I read an article on Mr. Thompson's tooth-shears, in which they were highly spoken of for removing the overgrown portions of molar teeth; and having experienced the inutility of the other devices for remedying this condition, I not long ago ordered a pair, though I had no particular occasion for using them just then. On their arrival I thought them expensive, and was in doubts as to their value. Quite recently, however, having had an opportunity of trying them, I have quite altered my opinion, and consider it only fair and just to give the inventor and the shears the credit they so well deserve.

About two months ago, I examined a mare valued at from sixty to seventy pounds, with a foal by her side. This mare was unable to eat in the stable, so she was turned out to pasture; but it was soon discovered that "quids" of grass were lying all over the track where she had been attempting to graze. It was then evident that she could not masticate or swallow any food; even when oats were given to her, after vainly trying to crush them, she would salivate profusely, and allow them to drop out of her mouth again, scarcely half masticated. She was in very poor condition; the coat was dry and staring, skin clinging close to the bony framework, and altogether the mare was in such a deplorable condition as to look not worth more than ten pounds. As it was obvious that the cause of all this was to be found in the state of the teeth, the animal was thrown down for the purpose of examining them; when it was discovered that, as so frequently happens, the last molar tooth in the lower jaw, in the absence of an opposing upper tooth, had grown to such a length, and so sharp, as to pierce the gum of the upper jaw every time the mare attempted to masticate. In similar cases I have always experienced the greatest difficulty, and have sometimes altogether failed to afford relief, by reducing the overgrowth with Gowing's sliding chisel—for the simple reason that, when the lower last molar is so elongated, and the mouth wide open, the tooth is so

much higher than the table of the upper molar, that it is utterly impossible to get the chisel over it in the majority of instances. Even when it can be got over, it will constantly slip off, to one's great annoyance. Often I have been compelled to send away the patient without having been able to trim the tooth satisfactorily. With the other molars, however, Gowing's chisel is generally a useful instrument. In cases like the one now under consideration, it will be entirely superseded by Thompson's tooth-shears, as success is the invariable result. When the animal is cast and the balling iron placed in the mouth, nothing is easier than to glide the open shears over the tables of the lower molar teeth, until the blades come in contact with the one which is overgrown; then, in attempting to bring the handles together, to push the shears well home in order to grasp all the superfluous portion between the blades, when in applying the screw apparatus, it cuts off all within its range perfectly clean and smooth, and without inflicting pain. The operation is so simple that it looks like mere child's play, when compared with the attempts with other instruments. In this case, and in others, such has been the result in my experience; and animals almost useless, and suffering great pain and inconvenience, have been in a few minutes restored to comfort and utility.

I have been so delighted with the working of the instrument, that I think it a duty to add my testimony to its great value. In this instance, an animal reduced to a sixth or a seventh of its value was, by an apparently trivial operation, rendered as valuable as ever.

FATAL EFFECTS OF THE SUN ON NEWLY-SHORN SHEEP AND LAMBS.

THE very hot weather which commenced on odd days in June, and was more continuous in July, appears to have been somewhat prejudicial to newly-shorn teggs and lambs in some of the Medway marsh pastures; and as such an occurrence has been considered altogether novel in that locality, it has attracted some attention. Mr. Martin, M.R.C.V.S., Rochester, on July 23, wrote

to us as follows: "We have a very large number of lambs, teggs, and sheep dying about the country this season from the effects of shearing. The deaths are not due to cutting the skin, nor can they be possibly assigned to the cold weather. Directly the animals are shorn a great number die—perhaps fifty at one place. I asked a farmer to send me a couple of lambs just dead: this he did yesterday. I have just opened one, and find the skin and structures it covers and protects very much inflamed; the lungs also run on to mortification. This mortality has occurred at several places, and it is of the utmost importance to farmers to discover the cause and avert the loss."

Subsequently, it was ascertained that the mortality was confined solely to shorn animals—some of these dying on the day on which they were clipped, others in one, two, or three days after that operation.

The symptoms during life were not ascertained, the animals perished so suddenly; but one farmer who lost a large number, states that "they all died through Gangrene, some being struck one part and some another, but principally it started in the hind-legs, right on the buttocks; after they were seized, it ran all over them in a few hours, and they were completely black; some commenced where they were cut with the shears, and some had not got the skin broken." This farmer in one instance lost fifteen lambs out of three hundred, in two days after shearing.

On July 24, with Mr. Martin, we examined the carcase of a lamb that had died in this way, and found the blood-vessels of the skin, subcutaneous connective tissue, and muscles, in a state of intense hyperæmia—looking, indeed, for all the world as if the surface of the body had been burned or scalded. The blood was very dark-coloured in the larger vessels of the body, and the right cavities of the heart were filled with black, semi-coagulated blood.

There can scarcely be a doubt that this mortality among the sheep and lambs in the Medway marshes, where there is no shade, was due to exposure to a scorching sun. It must be remembered that wool is an excellent non-conductor of heat, and that if it is a protection from the winter's cold, it is no less so from the sun's rays. When sheep immediately deprived

of it are exposed to a high solar temperature, it is evident that they will suffer as much, and die perhaps more rapidly, than when newly-shorn and exposed to cold and wet. The skin of the sheep is very sensitive to changes of temperature; hence the provision of nature in shielding it by a long and dense covering of a material which conducts heat from or to the body in such a remarkably slow manner.

It is not improbable that death, in the rapidly fatal cases, was due to a kind of cutaneous asphyxia, from cessation of the function of the skin by extreme engorgement of the superficial blood-vessels. The condition of the internal organs—as the lungs—would give some foundation for this supposition. In the cases which survived for two, three, or four days, general Erysipelas, with subsequent Gangrene, may have led to the same result. Probably derangement of the nervous system may also have had much to do with a fatal termination; for the sudden denudation and exposure of the skin in the region of the spine must have produced a marked alteration in the condition and function of the spinal cord. Indian sportsmen well know the danger incurred by remaining long in the sun without some protection to the head, neck, and spine; and, in addition to a sun hat, the more experienced wear a coat the back of which is thickly quilted with cotton.

This loss of sheep and lambs should indicate the necessity there exists for keeping them sheltered from the direct rays of the sun for a few days, if removal of their fleece is absolutely demanded during extremely hot weather. In the absence of shelter, the winter jackets, now humanely employed to protect sheep from cold, might be advantageously resorted to under these circumstances.

Editorial.

VIVISECTION.

A BILL has just received the sanction of both Houses of Parliament, which marks an era in the relations of Science to humanity and morality. This is an Act "to amend the law relating to cruelty to animals, by extending it to the cases of animals which, for medical, physiological, or other scientific purposes, are subjected when alive to experiments calculated to inflict pain." The bill, which is henceforth to be cited as "The Cruelty to Animals Act, 1876," is the result of much public agitation and discussion carried on for many months, though not always with that moderation and forbearance which such an important subject demanded.

The general public, including many learned medical and scientific men, roused to indignation at the reported cruelties of certain physiologists, alarmed at the increasing practice of experimenting on living animals, and denying that any advantages at all proportionate to the disadvantages of the practice had ever been obtained, insisted on altogether prohibiting these vivisections, or at least placing such restrictions on experimenters as would tend to greatly limit the number of experiments, and diminish the amount of suffering they entailed.

As in all discussions of this kind, two extreme parties soon came to the front; and it must be admitted that neither deserves much credit for judgment or consistency. One party, which might be designated the lay public (though its ranks included many medical men), insisted on the total abolition of vivisection, for moral and other reasons; while the opposite party, chiefly composed of a section of the medical profession, resented the interference of the public in this matter, claimed greatly exaggerated benefits for the practice, denied that any instances of cruelty could be proved against vivisectors (at least in this country), and urgently opposed legislative measures. A third party certainly did exist, and, as is generally the case, it held reasonable views; and as it had most weight, its opinions were ultimately those which prevailed. It considered that, in the interests of humanity no less than those of science, legislative restrictions were necessary to prevent abuses which had been undoubtedly proved to exist, even in this country, and were likely to increase. In fact, in the name of science any one who felt inclined could vivisect as much as he cared to, and without being subjected to the least restraint—moral or legislative. The history of vivisection is thus a terrible one to read; and there can be no hesitation in asserting that, in only too many instances, the claims of animals to merciful consideration at the hands of scientific men deeply engaged in study, were altogether overlooked. When men of learning, who occupied a superior station in society, could perpetrate the grossest cruelties in their laboratories or lecture-rooms, it was not likely that the uneducated lower orders could be much impressed with the necessity for the humane treatment of animals. Legal measures against the abuse, not the use,

of such experimentation, have therefore, for many years, been looked upon as the only means of repressing offences which, on the clearest evidence, were being frequently perpetrated. Britain, to her honour, as she was the first country in the world to recognise the claims of animals to the protection of the law so far as the lay public is concerned, has now been the first to attempt to shield them from unnecessary torture inflicted in the name of science. We fervently hope that her example will be speedily followed in other countries, and that those barbarities which the most prominent vivisectors in England confess are perpetrated in foreign laboratories, may be totally suppressed. Previous to the introduction of this bill by the present Government, other bills had been brought forward by private members of the legislature, but they were unsuccessful. The bill which will now become law was first presented in the House of Lords by Lord Carnarvon, where it was subjected to certain amendments before it found its way to the House of Commons. Here, again, it was submitted to alterations in several important particulars; and now, as it stands, though it will satisfy neither of the extreme parties, yet will be held by those who understand the subject to be as fair a measure as could be expected under the circumstances. We will not examine the arguments of those who are displeased with the bill. Some of those brought forward by a few of the most conspicuous agitators for unlimited vivisection are unworthy of men holding the position they do, and betray strange notions of animal sensibility; while the arguments of the total abolitionists are based on the erroneous idea that experimentation never has been and never can be of any use.

The Act states that no one is to perform or take part in performing an experiment calculated to give pain upon any save invertebrate animals, except subject to the restrictions imposed by it; and that those who infringe it, for the first time are liable to a penalty not exceeding fifty pounds, and one hundred pounds or imprisonment for a period not exceeding three months for a second or subsequent offences. These restrictions are as follows:—The experiment must be performed with a view to the advancement by new discovery of physiological knowledge, or of knowledge which will be useful in saving or prolonging life, or alleviating suffering; the experiment must be performed in a registered place, and by a person holding a license from one of the Principal Secretaries of State; the animal must, during the whole of the experiment, be under the influence of some anæsthetic of sufficient power to prevent it feeling pain, and if the pain is likely to continue after the effect of the anæsthetic has passed away, or if any serious injury has been inflicted, it must be killed before the anæsthetic influence has ceased; the experiment is not to be performed as an illustration of lectures in medical schools, hospitals, colleges, or elsewhere, nor for the purpose of attaining manual skill.

Experiments, however, may be performed under the above regulation as to anæsthetics in illustration of lectures in these places, provided a certificate is furnished that they are absolutely necessary for the due instruction of the persons to whom such lectures are given, with a view

to their acquiring physiological knowledge, or knowledge which will be useful in saving or prolonging life or alleviating suffering. Experiments may also be performed without an anæsthetic, on a certificate being given that insensibility cannot be produced without necessarily frustrating their object; and an animal may be allowed to live after it has recovered from the anæsthetic, if a certificate is furnished to the effect that killing it would necessarily frustrate the object of the experiment, and that such animal will be killed as soon as such object has been attained. It is likewise permissible for experiments to be performed for the purpose of testing a particular former discovery, alleged to have been made for the advancement of physiological or curative knowledge, provided a certificate is given that this testing is absolutely necessary for the effectual advancement of such knowledge. Urare, or curare, is not to be considered an anæsthetic. It is specially enacted that no experiment shall be performed without anæsthetics on a dog or cat, except on a certificate mentioning, in addition to the statements already alluded to as required to be made, that for reasons specified in this certificate the object of the experiment will be necessarily frustrated unless it is performed on an animal similar in constitution and habits to a cat or dog, and no other animal is available for such experiment; and an experiment calculated to give pain shall not be performed on any horse, ass, or mule, except on such certificate being given that the object of this will be necessarily frustrated unless such animal is vivisected, and no other animal is available. Any exhibition to the general public, whether admitted on payment of money or gratuitously, of experiments on living animals calculated to give pain, is illegal; and any person performing or aiding in these is liable to the penalties already mentioned. This will prevent a repetition of such experiments as those performed at Norwich in August, 1875.

Experimenters may be directed to furnish reports of the results of their experiments to the Secretary of State, in such form and with such details as he may require; inspectors are to be appointed to inspect registered places, and the Secretary of State reserves the power to disallow or suspend any certificate; and when there is any reasonable ground for believing that experiments in contravention of the Act are being performed in any unregistered place by an unlicensed person, a justice of the peace may issue his warrant, authorizing any officer or constable to enter and search such place, and take the names and addresses of the persons found therein—obstruction, or refusal, or giving a false name, being met with a penalty not exceeding five pounds.

An important point in this Act is the manner in which the licenses are granted. Application for these, and certificates, must be signed by one or more of the Presidents of the Royal Colleges of Surgeons or Physicians in England, Scotland, or Ireland, of the General Medical Council, of the Royal Society of London or Edinburgh, or of the Royal Irish Academy. As the bill left the House of Lords, the President of the Royal Veterinary College was also indicated as one of those who could exercise this power, *but only in the case of an experiment to be performed under anæsthetics, with a view to the advancement by new discovery of*

veterinary science. As the paragraph stood, it was absolutely valueless; indeed, it indicated a certain amount of ignorance of the true state of affairs on the part of those who inserted it. In the first place, the Royal Veterinary College is a mere teaching school, and has no scientific status among the corporations with which it appears in this Act; it differs from them in being, in no respect whatever, a representative scientific body,—while its President is a layman, and, we fancy, not in a position to decide as to vivisectional experiments. Secondly, there may be occasion some day, when the veterinary profession in this country can boast of scientific investigators, to perform experiments with regard to the transmissibility of contagious diseases, and other pathological subjects, for which anæsthetics would be unnecessary and incompatible. By proper representation, the Government altered the paragraph in favour of the Royal College of Veterinary Surgeons, the representative body of the profession; and now it reads, "The President of the Royal College of Veterinary Surgeons; or the President of the Royal Veterinary College."

Such is the Act for protecting animals from cruelty in vivisectional experiments; and whether it may succeed in its object, or whether it may fail, remains to be seen. It in no way interferes with scientific investigation; whether it will be a check on reckless and inhuman practices is another question.

In courageously legislating for protection for animals from abuses which, it would appear, are particularly liable to attend vivisection, Britain has done well, and will have no cause to repent. This is almost the only point on which science and humanity have come into conflict; and neither can afford to be worsted in the contest, for they are closely allied. This Act should guard both from danger, and bring them into harmony. Our humanity should not be selfishly limited to our own species, nor our welfare attempted to be promoted by the sufferings of our humbler companions and servants. A department of science which confines its humanity solely to mankind, and exhibits no anxiety for its extension to the inferior creatures, has not much reason to boast; but a profession whose sacred duty it is to prevent suffering in animals and to relieve them from pain, should look upon every measure which aids in this direction with unmingled satisfaction. Experimentation on animals may be necessary for the advancement of science and the promotion of medical knowledge; but then it should not be indiscriminate, needless, and cruel, nor yet entrusted to incompetent or unfeeling men. A grave moral responsibility attends the infliction of pain on any creature; and it is well that this responsibility should be kept before us, even if it must be done by Act of Parliament.

NOTICE OF THE OUTBREAK OF RABIES WHICH OCCURRED AT DORPAT AND ITS VICINITY IN 1874.

PROFESSOR GUTMANN, Clinical Assistant at the National Veterinary Institute of Dorpat, Russia, in a supplement to the late Director Jessen's yearly report of that school, and which is republished in the *Archiv. für Wissenschaftliche und Practische Thierheilkunde*(*Erster Bund Fünftes Heft.*), gives a most interesting and important account of the epizoöty of Rabies which prevailed in that quarter in 1874.

It appears that, since 1865, no domesticated animal affected with Rabies (*Wuth*) had been brought to the Dorpat Veterinary Institute; and though between that date and 1874 isolated cases might have occurred in the district, yet there was nothing to equal the number destroyed by or through the disease in the year specified.

On July 18, Gutmann was sent on a mission to Karlsberg Palace, in Aija, around which a number of cattle had died since the 14th of that month. On his arrival he found five patients. The disease had in all of these cows commenced with suppression of the milk. The first affected showed loss of appetite and weakness, or swaying of the hind-quarters, on July 14th; and it was noted as a remarkable circumstance that from this date the cow had remained fixed to the same spot in the field where it had been grazing. As soon as any one went near it, it lay down and would not be driven away from this particular location. When left alone, it got up, and stood in a kind of apathetic manner, now and then licking one of its hind-feet.

The second cow exhibited the following symptoms from the 15th of July: Loss of appetite, weakness in the loins, urgent attempts to pass the fæces, with frequent loud bellowings. It is also worthy of remark that this cow, after separating itself from the herd, was tied up, but was subsequently found straying alone. When captured, Gutmann had it killed, in order to ascertain what pathological alterations had taken place in it. But nothing more was discovered than great constipation of the omasum (*Blättermagens*) and distension of the bladder. Owing to the darkness setting in, the cranium and spinal canal were not opened. On the 16th and 17th July the other three cows were taken ill; there was loss of milk, weakness in the hinder parts of the body, with tremors in the neck, shoulders, and at the flanks. The pulse was quick, but the temperature did not appear to be altered; it was 38·5° to 39° Cent. in the rectum. The sight of a dog did not excite them.

With regard to the cause of the disease, Gutmann remained at a loss to discover at that time anything for certain; nevertheless, he could not avoid acknowledging having some suspicion that the malady was Rabies, and pointing out the desirability of adopting the necessary precautions. The sick animals were accordingly brought into a barn, and Sodium sulphate and Potassium nitrate were administered internally, while a liniment composed of Oleum terb. and Ammon. fort. was applied externally.

From the 18th to the 22nd July, seven other cases, presenting similar

symptoms, occurred—bringing the number up to twelve. It was then deemed advisable to send Professor Unterberger along with Gutmann to Karlsberg for two days, in order to observe the disease more closely.

Up to the 22nd, the day of arrival, five cows had perished. In those remaining, the following symptoms were noted: Diminished appetite, and in some of them no appetite at all; in one the thirst was very great. The pupils were dilated. In one cow the voice was altered and shriller. The animals licked and gnawed the back and hind-quarters and legs. The weakness in the loins finally became paralysis of the hinder extremities. In a few Tenesmus was constant; and in all the fæces were coated with a thick layer of mucus. There were muscular tremors in the neck, shoulders, and flanks. Some of the affected animals threw themselves suddenly down, groaned, and kicked their limbs about, and in five minutes got up again. At last they gathered themselves up in a lethargic condition, in which they remained. The temperature of a sick cow, taken in the rectum a short time after arrival, was 40·3° Cent. The other animals did not differ much from this measurement. During his stay at Karlsberg, two cows succumbed to the disease, and on the autopsy only discovered constipation of the omasum, Hyperæmia of the small intestines, and effusion into the ventricles of the brain.

A farmer now for the first time informed Gutmann, that on June 20th a shepherd's dog in Karlsberg became sick, and on the third day of its illness it ran away towards Aija, where it bit some cattle, and fifteen versts beyond the district it was at last killed. The mouth of the dog was open (in all probability from paralysis of the lower jaw), and the tongue swollen. It had endeavoured to cool its tongue and throat in a ploughed field.

The number of the as yet apparently healthy cattle was fifty-six. In so far, then, the symptoms and the autopsies accorded with the communication obtained with regard to the runaway dog, and left scarcely a doubt that the disease affecting them was the so-called "dumb-madness (*Stille Wuth*)."

The loss among the affected cattle could not have amounted to less than forty head.

At the same period, Professor Ohsol, of the Dorpat Institute, went to Gute-Kawast, a village appertaining to Andresaas-Gesinde, where it was suspected that Rabies had appeared among the cattle on the village common, in order to investigate the circumstance. In this village it was ascertained from one of the occupants that about three weeks before two bulls became unwell, and one of them died in five days, the other being killed in seven days. The owner of these animals had only a very imperfect recollection of the symptoms presented by them; but the chief were restlessness, little appetite, foaming at the mouth, and frequent bellowing. To the question as to whether the cattle had been wounded by a rabid dog, he replied that one of his dogs one day bit them, and that this creature immediately afterwards ran away from home; it had eaten nothing, and had a most peculiar, alarming appearance. It was soon suspected of being mad, and was killed. The wounded animals were not long in getting apparently well.

On August 10, Ohsol went to Warrol-Karlsberg to inquire into the nature of a disease which had broken out among the village cattle. He gave the following as the result of his investigation: On his arrival, the owner informed him, about six weeks previously a shepherd's dog had gone mad, and after running wildly about, finally disappeared. On July 16, a cow showed symptoms of indisposition. The proprietor himself thought that it was suffering from Rabies, and conjectured that it had been bitten by the dog: it was killed on July 24. Subsequently three cows fell sick—one on the 6th, another on the 8th, and the third on the 9th of August—and showed these symptoms: Loss of appetite, dulness, and salivation; muscular tremors in different parts of the body; great straining in attempts at defecation, though nothing followed. At the sight of a dog they were excited, and commenced to bellow, although they quickly ceased through exhaustion. The hinder extremities were evidently affected with paralysis, and in one of the patients this paralysis was complete throughout the body. The owner assured Ohsol that the cow which was killed on July 24th had similar symptoms.

On a *post-mortem* examination of the cow which was attacked on the 6th and killed on the 10th August, the following pathological alterations were noted: The omasum was filled with dry food, and the mucous membrane was reddened; the other abdominal organs were healthy. In the thorax there was no change. The brain and its membranes were congested.

The symptoms, and the meagre results afforded by the autopsy, as well as the oral communication made by the owner, led Ohsol to the conclusion that there was much reason to believe the disease to be Rabies.

In the course of the outbreak at Warrol-Karlsberg, no fewer than seventeen cattle perished.

On August 18, Ohsol was ordered to report on the occurrence of Rabies in the village of Wira. There he saw a dark-brown cow which had for two days been ill. The symptoms were: General emaciation; staring look; reddened conjunctivæ; a clear fluid dropping continually from the mouth; the animal bellowed frequently and loudly, but the voice was shrill; at the sight of a dog it was extremely agitated, but soon lapsed into an apathetic condition. When it walked it showed symptoms of weakness in the hinder extremities. For the two days it had neither eaten nor drank, and it suffered from constipation.

These symptoms indicated the presence of Rabies; and the farmer stated that in the middle of June he had lost two cows from a peculiar and similar disease. When questioned as to whether the cow had been bitten by a rabid dog, he answered that in May he had certainly shot three strange and very suspicious-looking dogs, but he was not sure whether they had wounded this one of his cattle.

On November 12, Gutmann and a student went to Oberpahlen, in the domain of which, at Mochküll, a number of cattle were reported as sick. The bailiff informed him that from the 4th to the 12th of November (the date of Gutmann's arrival) no fewer than ten cattle had been sick. Of these three had been slaughtered for food, though the flesh had not been

consumed. Another of the animals died. The remaining six were yet alive; and in order to ascertain the nature of the malady, one was killed. In addition to constipation of the omasum, the bladder was greatly distended; the ventricles of the brain and the spinal canal were full of serum; no other pathological alterations were discovered. This outbreak among the Mochküllen cattle, therefore, agreed in its principal characters with that at Karlsberg. The temperature of the animals was not increased. The number of animals still apparently healthy was seventy-three. Taking the afore-mentioned symptoms and the *post-mortem* appearances into consideration, it was concluded that the malady was that form of Rabies known as "dumb-madness (*Stille Wuth*)." Though rabid dogs had been reported as seen in the neighbourhood, it could not be ascertained whether any of this herd had been bitten by them.

The bailiff afterwards reported that, up to December 12th, thirty-three head of cattle had been lost.

In that portion of the clinical report of the Dorpat School which refers to the contagious diseases of animals, it is stated that from July 29 to December 31 seven cattle were affected with "dumb madness," and eight dogs were admitted—three as suspected of being rabid, and five with symptoms of paralytic Rabies. Two of the latter came from the country; the other six were from the town. The cattle exhibited similar symptoms to those already described, and nothing abnormal was found in their temperature. The alteration in the voice was a very marked characteristic. The agitation, excitement, and bellowing when a dog was put before them was observed in some only, not in all. The autopsy in nearly every one of these cattle gave the following results: The brain and spinal cord of a yellowish colour and softened; effusion into the ventricles of the brain; the omasum filled with food, which was at a late period very desiccated; the mucous membrane of the fourth compartment of the stomach, and more particularly its folds, as well as the small intestines, were infiltrated, swollen and inflamed, and in some places stained completely through with blood extravasate. The liver in some cases was of a dirty yellowish-brown hue, and exhibited commencing fatty degeneration. The kidneys were hyperæmic, and the bladder distended.

In the dogs, the symptoms of the disease were as follows: Great emaciation; eyes deeply sunken in their orbits; constipation; paralysis of the lower jaw, as well as of the hind-quarters; the desire to bite was scarcely manifest. On examination after death, the brain and spinal cord were found to be hyperæmic and softened, and in the stomach were masses of hay or straw; the mucus of the intestines was mixed with bile, and the mucous membrane was hyperæmic in patches. The liver and kidneys were congested.

Sunzel, one of the clinical professors at the Dorpat Institute, made some very interesting and important inoculation experiments—a short notice of which is appended.

A calf about six weeks old was inoculated with the saliva from a rabid heifer the night previous to the death of the latter.

The saliva was introduced beneath the skin behind the left scapula, by means of a Sticker's needle. Up to March 6th, there were no signs of anything being amiss with it; it ate and drank very heartily, and looked lively; though the fæces were dry, and voided in balls.

The temperature, however, suddenly altered, and began to sink so rapidly, that on the third day after inoculation it was only 37·5° Cent. On February 3 it was 38·7°, at which height it pretty nearly remained until February 19, when it began to vary considerably; on this date it suddenly ascended until it reached the normal standard again.

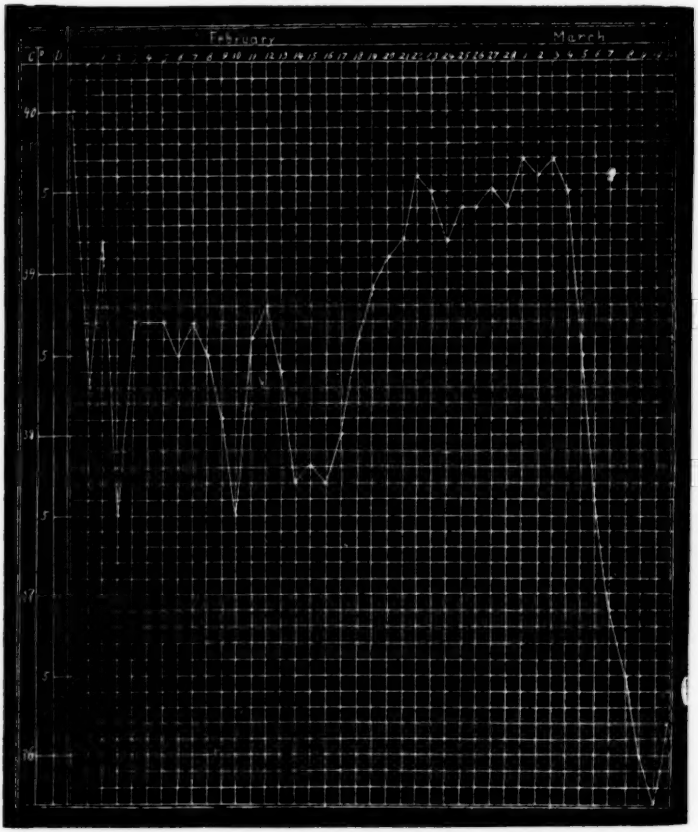
From January 31 until February 12, the blood was carefully examined microscopically, but nothing unusual was discovered.

On March 6, the thirty-sixth day after inoculation, there appeared the first symptom of infection having taken place. The appetite gradually diminished day by day until the creature was nearly starving, and the body became emaciated at the same rate. The calf stood a longer time in one spot, carried the head in a drooping fashion, and dozed or nodded at times, as if it were tired and sleepy. The fæces were hardened as in the early period, and the temperature began to sink rapidly. On March 8 it was heard to bellow for the first time, though the tone of the voice was unchanged, nor did it alter until the animal died; saliva flowed from the mouth; the look of the calf was heavy; and a very unusual shrugging of the muscles was remarked.

On March 9 the gait was unsteady; saliva flowed copiously from the mouth; the bellowing was the same as on the previous day; and the temperature had fallen to 36°. A dog being brought before it to see how it would behave, it was somewhat remarkable to see it approach the dog, and stare and smell at it, though there was no indication of excitement. A microscopical examination of the blood led to the discovery in the serum of masses of fine granules, and an increase in the number of colourless corpuscles. Paralysis was becoming general on March 10, as was apparent at a glance at its outstretched limbs. The bellowing was more laboured than before; and in the arterial, as well as in the venous blood, the same alterations were noticed as on the previous day.

On March 11 paralysis was general; the animal tried to bellow but could not, in consequence of the complete paralysis of the laryngeal muscles. The temperature was 36·3°. The blood presented the same appearances as on the previous day. The calf succumbed during the night. An autopsy was made on the following day, and the notes of the examination were these: The carcase emaciated; the fourth compartment of the stomach, or abomasum, and the intestinal canal empty, and their lining membrane of a brownish-red hue, very hyperæmic, infiltrated, swollen, and softened; the surface of the kidneys of a yellowish-brown colour. In the brain ventricles was a quantity of reddish-brown fluid, and the subarachnoidean space was filled with a colourless transparent liquid; the spinal cord itself was not altered, but around it lay a jelly-like mass of a reddish-brown tint. The colourless corpuscles of the blood were much increased in number, and in the serum were granular masses and some globular bacteria.

The annexed chart shows the variations in the temperature from January 31, the day of inoculation, until the calf died.



EPIZOÖTY AMONG CATS IN DELHI, RESEMBLING CHOLERA.

IN the *Veterinary Journal* for February of this year, in our "Notes and News" column (p. 153), we alluded to a mortality among cats at Delhi during an outbreak of Cholera among the human inhabitants there. In the *Lancet* for July 22 and 29, Surgeon-Major Fairweather, Civil Surgeon at Delhi, also refers to this cat epizoöty, and gives some interesting details as to its character, and some experiments he undertook to ascertain whether it had any relation to Cholera. It appears that on August 19, when the latter pestilence had nearly reached its height in mankind, Dr. Fairweather's attention was casually drawn to the fact that a fatal disease of some kind was prevalent among the felines in the city, and that they were literally dying by scores. On inquiry it was found that this cat malady was marked by severe vomiting and purging, and that it was sometimes fatal in a few hours. It was also ascertained that it had been prevalent for some time before this, and was not confined to any particular quarter, large numbers of dead cats been picked up every morning in all parts of the city; though it was not known to extend beyond the walls. It gradually declined, and finally disappeared about September 20, the number of cats which had died in the interval being estimated at about five hundred—a very heavy mortality, considering the probable feline population of the city. For several successive mornings, from twenty to thirty dead cats were brought to the doctor for examination, and he was surprised to find that the *post-mortem* appearances closely resembled those in the human subject after death from Cholera. The cats had all a pinched appearance, with eyes sunk in their sockets; both thoracic and abdominal organs seemed to occupy less space than usual; the intestines in nearly every instance were found to contain no fæces, but were filled with a thin fluid like rice-water, without a trace of the colouring matter of the bile, although on one or two occasions it was tinged of a slightly pink colour. No intestinal ulceration was noticed, and in only one or two was there congestion of this tube. In nearly all which were examined intestinal worms were found—a round worm fully an inch long, and a kind of tapeworm. The former was generally met with in the stomach (*Ascaris mystax?*), and was occasionally associated with the tapeworm. The liver was generally of a flabby consistence; the gall-bladder full; the urinary bladder was, as a rule, empty; the kidneys much congested; the lungs shrunken; and the heart, usually its right side, distended by a loose black clot.

It was with much difficulty that cats suffering from the disease could be obtained, in order to watch their symptoms during life; as the malady was so rapidly fatal. Two were, however, found, the first of which lived only a few hours, but was seen to vomit a whitish fluid containing one or two round worms like those found in the dead cats.* The *post-mortem* appearances were the same as those already described. The second cat lived some days, and vomited and purged.

Having satisfied himself that neither in its symptoms nor pathological anatomy did this malady differ from Cholera, the doctor endeavoured to discover whether it was communicable to cats, and whether a similar disease could be produced by the Cholera discharges from the human subject. For this purpose eight healthy cats were procured, two of which were tied beside one suffering from the disorder, while three were confined separately and fed with meat mixed with a small portion of the intestinal contents of the dead cats, and the remaining three were fed with meat tainted in like manner with

* Cats frequently vomit these round worms, even when in health. We have a large collection of the entozoa so expelled.—ED. *V. J.*

the discharges of a Cholera patient. In two days one of the three cats which had eaten the discharges from a Cholera patient was seized with choleraic vomiting and purging, and died the following day. Its stomach contained the small round worms ; the small intestines were very empty, and what they did contain was of a milky fluid appearance, without a trace of bile. In the large intestine milky fluid was found, together with a solitary small lump of dark-coloured fæces. The other appearances were the same as those described in the dead cats picked up in the city. Three days later another of the cats which had eaten Cholera discharges was taken ill with vomiting and purging of a distinctly choleraic nature, but it ultimately recovered. The third cat showed no symptoms of illness.

Although these experiments had failed to show that the disease was communicable from cat to cat, yet it seemed to prove that a malady resembling it in every respect, and differing in no appreciable degree from Cholera as it affects the human subject, could be induced by giving food mixed with the discharges from a Cholera patient. But there was a possible source of error, in that the cats experimented on were got from the city, and might therefore have brought the germs of the disease with them. Moreover, the experiments was conducted within the city walls, and therefore within the infected area.

To guard against any such source of error, nine cats were obtained from a distance of twelve miles, where the disease was unknown, and kept without the city. These were fed morning and evening with meat, mixed with a small quantity of Cholera discharges. The water allowed them was also mixed with these; but they seemed to drink very little, and did not care for milk. The feeding was continued regularly for ten days, but no sign of illness was observed beyond several of them being reported as having vomited or purged. So lively did they appear that they were about to be released ; when it was thought advisable to try them with fresh discharges from a Cholera patient just admitted to hospital. In two days seven of them were reported as vomiting and purging frequently, the motions being dark in colour. Next day all were ill ; and on that evening one died, and the following morning another. The intestines of both these cats were filled with most characteristic rice-water fluid. Two others died soon after, and presented the same appearances ; but the remaining five, after a struggle, ultimately recovered. In the city a certain number of cats were fed with food to which was added the stools of patients suffering from Dysentery, Chronic Diarrhœa, and Enteric Fever, also healthy human fæces, and the pus from an unhealthy abscess. Several of the cats showed symptoms of Gastro-enteritis, and two died ; but the *post-mortem* appearances were very different from those witnessed in the other series of cats. One of the two had been fed with dysenteric motions ; and although it had been observed to be very ill the day previous to its death, there had been no vomiting nor purging. The intestines contained solid, dark-coloured fæces. The other cat had been fed on Enteric Fever stools, and was not observed to be ill previous to death ; the intestines were nearly empty, and contained only some hard, dark pieces of fæces like scybala.

The result of the experiments was to show that the choleraic symptoms observed in the first series were not caused by merely giving the animals some noxious material in their food, at a time when a supposed epidemic influence may have been present, but that the Cholera discharges contained something specific which was not in the other matters. Had the experiments ended here, the doctor would have been satisfied that the disease among the cats was true Cholera, and that it was communicable to them through the discharges from the human subject. But a partial revival of the Cholera later in the season, when all trace of the cat disease had long disappeared, enabled

him to continue his investigations in order to determine the stage at which the Cholera discharges were most virulent, and whether their virulence was affected by boiling or otherwise disinfecting them. The result of these was, however, highly disappointing; for although the discharges were given in all kinds of ways, and were injected into the subcutaneous connective tissue, in none were the choleraic symptoms observed in the previous experiments produced. Many of the cats vomited or purged, and five of them died in the course of the experiments; but, with one exception, there was nothing in their symptoms or *post-mortem* appearances which could be called choleraic. The exceptional case was one of a number of cats to which was administered a dose of croton oil, and afterwards unboiled Cholera stuff. This died; and the intestines were nearly empty, the smaller containing some dark-coloured mucus, the larger intestines mucus of a light colour, but differing from the rice-water fluid found in the first diseased cats.

Notwithstanding that the last-mentioned experiments failed to confirm the earlier ones, Dr. Fairweather could see no reason to reject the latter as fallacious; because even if we knew much more than we do about the times and the seasons, and the peculiar conditions under which the poison of Cholera takes effect, it is not likely we should ever be able to obtain results with anything like the certainty of a chemical experiment. In the second experiment, in which the Cholera discharges proved successful, the success may perhaps have been due to a heavy fall of rain which occurred at the time, and during which the cats were necessarily exposed to cold and damp.

The viscera of two cats, one of which had died from the natural, the other from the induced disease, were examined by Drs. Lewis and Cunningham at Calcutta; but none of the lesions of Cholera were discovered by them. The worms found in the stomach were of two kinds—the ordinary tapeworm (*Tænia crassicollis*), and some round worms supposed to belong to an undescribed species,and resembling a kind of *Physaloptera* found in other members of the feline race—as the puma and cheetah. The latter worms plugged the œsophagus and duodenum of one cat. In the other animal were found the ordinary round worms of cats (*Ascaris dispar*), which frequently give rise to intestinal disturbance and severe vomiting in their host.

It may be remarked, with regard to this mortality among cats at Delhi, that in the earlier and widely mortal invasions of Cholera in Europe in this century, wide-spread and fatal disease existed among animals, especially on the Continent, and the symptoms observed in them, and more particularly in birds and poultry, resembled those of Cholera.

THE ANCIENT BRITISH PIG.

Nature mentions that Professor Rolleston has recently been making some researches on swine, the discovery of some remains buried in the alluvium, near Oxford, having directed his attention to the subject. In illustration of a paper "On the Prehistoric British *Sus*," read by him at the Linnæan Society, June 15, the following specimens were exhibited:—1. Skull of *Sus scrofa*, var. *domesticus*, from a late Celtic interment. 2. Skulls of *Sus scrofa*, var. *ferus*, from alluvium near Oxford, and from Germany. 3. Skull of *Sus andamanensis*, forwarded him by J. Wood Mason. 4. Skull of *Sus cristatus*, lent by Sir Walter Elliott, K.C.S.T. 5. Skull of *Sus barbatus*, wrongly named *S. verrucosus*, and needlessly *Euhys barbatus* in some mammalogical catalogues.

Upon these and other data the author bases the subjoined conclusions :—

1. The domesticated pig of pre-Roman times, as exemplified at least by the specimens from the interment referred to, appear to resemble *Sus scrofa*, var. *ferus*, rather than *S. cristatus*, or the domestic variety, *S. indicus*.

2. On the other hand, *S. cristatus*, the Indian wild hog, appears to him, whilst being readily and always distinguishable from *S. scrofa*, var. *ferus*, to differ from it mainly by the retention permanently of certain structural conformations which were only temporarily represented in the European wild species. The third molars of the male, *S. cristatus*, varied, however, concomitantly with its canines, and showed a much larger development of their posterior lobe, than either *S. scrofa*, var. *ferus*, or the females of their own species. The rearmost lobe, however, of the posterior molar, varies a good deal in *S. scrofa*, var. *ferus*, irrespective of sex.

3. Bearing in mind the elasticity of the swine type, and the power for changing which their domestication has shown to possess, Dr. Rolleston has less difficulty in conceiving that the so-called *S. indicus* was really a modified *S. cristatus*, than that it had been evolved from any *Sus*, such as *S. leucomystax*, from countries farther away from Europe than India. *S. cristatus* had the malar border of the lachrymal always marked by the relative shortness insisted on by Nathusius. It had not the relatively wider palate ; but upon this point too much weight had been laid.

4. A skull of a wild sow, from the alluvium, later in date than the "river gravels," near Oxford, combined the short lachrymal characteristic of young pigs and of *S. cristatus*, with the worn-down teeth, elongated facial skeleton, and disproportionally small size of an old wild sow, *S. scrofa*, var. *ferus*. Such a combination of characteristics tended to suggest carefulness as to accepting the Torf-Schwein *S. scrofa*, var. *palustris*, of Rütimeyer, as a distinct species, or taking even such a point as the shortness of the lachrymal as constituting a specific difference.

5. The simplicity in the third molars in the very large skull of *S. barbatus* appear to be of greater value, as the rugose condition might have been expected to be forthcoming in so large, so well armed, and so well fed a *Sus* as this from Borneo.

6. The true *S. verrucosus* differs from *S. barbatus* in having the lachrymal's malar edges long, relatively to its orbital, as well as in the peculiarities which its specific name implies. These peculiarities were reproduced in the old Irish "Greyhound Pig" figured by Richardson ("Domestic Pigs," p. 49, ed. Warne).

7. The often-quoted paper by Dr. Gordon, *Medical Times and Gazette*, May 2, 1857, p. 429, led us to suppose that *Tænia solium* of man infested the domestic pig of India, as it does those of other parts of the world. The facility with which the pig lends itself to domestication, enables us to understand how the many-sided commensalism which now exists between man and that animal may have set up in very early times. Indeed, the particular results of their commensalism which their solidarity, as regards the alterations of the generations of *Tænia solium* represents, suggest that their co-existence in time must have been more extensive than even the co-existence in space ascribed to them, not quite correctly, by Gibbon ("Decline and Fall," chap. ix. note 9, p. 392, Smith's edition).

FOOT-AND-MOUTH DISEASE IN HEREFORDSHIRE IN 1875.

THE *Farmer* reports that the Herefordshire Chamber of Agriculture has collected statistics of the ravages of contagious cattle disease last year in 150 parishes in the county of Hereford. The injury sustained by the farmers is estimated at nearly £94,000. In 1872 the estimated loss was £152,000. Foot-and-mouth disease, it is said, was quite as prevalent and as virulent last year in the county as in 1872; but the returns are not so extensive, for eighty parishes have made no reply to the inquiries put to them respecting the amount of disease in their neighbourhood. The following are the returns now given by the Chamber for the year 1875 :—

		Estimated loss.
	CATTLE.	
307	Bulls attacked and recovered, say £5 each	£1,535
29	Ditto died, average value, say £30 each	870
4,759	Cows in milk attacked and recovered, say £3 each	14,277
69	Cows died, average value, say £20 each	1,380
4,006	Calves attacked and recovered, say £2 each	8,012
322	Ditto died, average value, say £6 each	1,932
2,396	Fat cattle attacked and recovered, say £2 each	5,872
20	Fat cattle died, average value, say £25 each	500
11,182	Store cattle attacked and recovered, say £2 each	22,364
100	Store cattle died, average value, say £17 each	1,700
23,730		£58,442
	SHEEP.	
42,800	Sheep attacked and recovered, say 10s. each	21,400
547	Sheep died, average value, say £3 each	1,641
18,455	Lambs attacked and recovered, say 10s. each	9,227
611	Lambs died, average value, say 30s. each	916
65,413		£33,184
	PIGS.	
3,196	Pigs attacked and recovered, say 10s. each	1,598
598	Pigs died, average value, say 20s. each	598
3,794		£2,196
	TOTAL LOSS.	
	Total No. cattle attacked, 23,730	58,442
	Do. sheep do. 62,413	33,184
	Do. pigs do. 3,794	2,196
	89,937	£93,822

The above returns are to be forwarded to the members of Parliament of the district, to be presented to the House of Commons, in addition to a numerously signed petition which has been drawn up on the subject of contagious Cattle Disease.

PULMONARY RESPIRATION IN THE DOMESTIC ANIMALS.

AT the conclusion of an elaborate memoir on the pulmonary respiration of the larger domesticated animals, the Veterinary Professor, Sanson, gives the following *resumé* :—1. The intensity of the respiratory function varies with the species of animal. The weights being equal, the equinæ eliminate more carbonic acid than ruminants in the same space of time. 2. In each species the races, and in each race the variety having the least weight, have the most active respiration. These present relatively the largest pulmonary surface. Among horses, those of English breed exceed all others in the spaciousness of their thoracic cavity, and in the volume of their lungs. Their lungs also present smaller alveoli. Among the bovidæ, the observations of Baudement, which have been confirmed by all other observers, show that the weight of the lungs diminishes relatively to the weight of the body, and the capacity of the thoracic cavity diminishes also in proportion as the race or variety is more premature or precocious in the ossification of their skeleton. 3. Sex influences respiration—it being more active in the male ; and it is well known that his pulmonary capacity is the largest. 4. The young eliminate more carbonic acid gas than the old. The respiratory rhythm and the number of respirations are relatively less in the old. 5. Food, providing it be sufficient to maintain the animal in its normal state, has no influence on the amount of carbonic acid gas eliminated, whatever may be its quality or quantity. 6. Respiratory effort, which causes increased elimination of carbonic acid gas, whilst it is being made, has no subsequent action. Animals used for draught do not, during repose, give off more of this gas than animals which do no work. 7. Temperature has a direct and important influence on the elimination of carbonic acid gas. The quantity eliminated is in direct proportion to the height of the temperature. Contrary to what is generally stated, the amount of carbonic acid gas eliminated by the respiration diminishes as the temperature falls. 8. The barometric pressure acts inversely to the temperature. The elimination diminishes in proportion as the pressure rises, and augments as it falls. The influence of temperature and pressure consequently conpensate one another within certain limits.

CHEMICAL AND ORGANIC FERMENTS.

BY MÜNTZ.

M. MÜNTZ states that there are certain distinctions to be noticed in the actions of chemical and organic ferments. The living ferments he finds exert their maximum effect between 25° and 40° C., while the chemical ferments are most active at a considerably higher temperature, in which life is manifested with difficulty. He finds the fermentation of milk, urine, and other substances in which living organisms operate, is arrested by the presence of chloroform, while purely chemical fermentation is not stopped by that agent. Somewhat misusing the word "anæsthesia," he informs us that beer-yeast thrown into that state, and kept in it for several hours, does not appear, after the chloroform is withdrawn, to recover the power of acting with its usual energy on saccharine matters. The lactic ferment he finds less sensitive, but killed by prolonged contact with the anæsthetic.

AN EPIZOÖTY AMONG POULTRY.

BY HAHN.

(*Wochenschrift für Thierheilkunde.*)

HAHN, veterinary surgeon of Colmar, reports the outbreak of a serious disease among poultry during the summer of 1873, in the canton of Guebwiller (Upper Alsace), and which destroyed a great number.

The malady was always fatal, and ran its course rapidly; attacking, without distinction of age or breed, the fowls and ducks, but chiefly the geese. When apparently in perfect health, they suddenly became dull, the feathers bristled up and lost their gloss, the crest and beak changed colour to a dark blue tint, black patches appeared on the skin covering the body, a sticky matter was discharged from the mouth and nostrils, and, finally, the poor birds fell on the ground and, after severe convulsions, perished. All this took place in a few hours. In the majority of cases, fowls quite well at night were found dead next morning.

Hahn made about a score of autopsies, and constantly noticed the same lesions. These were hyperæmia of the brain and congestion of its membranes; beneath the pulmonary pleura a large quantity of foamy blood was seen; there was extreme congestion of the lungs, which in some places resembled a black pulp; the heart and large vessels were gorged with dark, thick, and viscid blood; the crop and gizzard in some instances contained an inspissated glutinous mucus, in others undigested food mixed with sand. The vessels of the entire peritoneum were highly injected; there were brown patches and extravasations of blood in the mucous membrane of the intestines, the glands of which, and particularly the solitary glands of the colon, were very much hypertrophied; the mesenteric glands were gorged with blood, and considerably larger than in health; the liver was soft, friable, and full of blood; the biliary ducts were distended with thick bile, but the gall-bladder was nearly empty; the spleen was greatly enlarged and congested, but its parenchyma was whiter than usual.

The treatment prescribed by Hahn consisted:—

1. Giving the poultry, as food, a mixture of boiled potatoes, corn, and salt, which was kept until it became sour; and for drink, water from a forge trough; or, better still, a decoction of fir cones, in which a small quantity of sulphate of iron was dissolved.

2. Keeping the fowl-roosts and yards as clean as possible, and having in each during the day a saucer containing chloride of lime, or washing them with lime-wash or a solution of chloride of lime or carbolic acid.

3. Keeping the fowls in the open air as much as possible.

4. Not to throw the dead birds on the dung-heap, but to bury them deeply, and away from the place.

In addition, the consumption of the flesh of those which had died was forbidden, though no accident had occurred from its use. A careful watch was ordered to be maintained over the slaughter-houses and butchers' shops; for it is known that the viscera of cattle which have perished from Anthrax, or sheep which have succumbed to splenic fever, when given as food to poultry may cause disease.

In all the communes where these instructions were followed, the cases became gradually fewer. As a result of the treatment, all the fowls were affected with a violent diarrhœa of a greenish-yellow matter, and which persisted for two or three days; but they were preserved.

Review.

BITS AND BEARING REINS, HORSES AND HARNESS. By Edward Fordham Flower. London: Ridgway.

Mr. Flower may be acknowledged as the most indefatigable champion the horse ever had, so far as its working gear is concerned. He has spared no expense nor exertion in endeavouring to bring about the noble beast's emancipation from cruel restraints, inconveniences, and absurdities, which, while they diminish its utility, mar its beauty, and produce more or less discomfort, also tend, some of them, to produce disease and unsoundness, and shorten life.

The evils of the bearing-rein we have often and strongly commented upon; and in the first of his pamphlets Mr. Flower has, by excellent drawings and the highest testimony, placed the hurtfulness of this instrument of torture in the strongest light. There can be no doubt whatever that this is a device of the unskilful or lazy coachman; and we are confirmed in this belief by often observing that the tightest bearing-reins are worn by horses which we see standing in West-end carriages, on the driving seat of which the coachmen sit in that state of somnolescent torpor peculiar to an extreme stage of plethora, bordering on cerebral apoplexy, due to overfeeding and insufficient work.

In his second pamphlet, Mr. Flower attacks bad harnessing in general, and particularly bits and blinkers. His strictures are perfectly justifiable; and we sincerely trust he may live to see the day when the abuses he so energetically attacks will be abolished, and the horse rationally harnessed. In this direction, veterinary surgeons should be able to aid very largely; their interest in the welfare and comfort of the horse should at least be as great as that of any layman.

Abstract of the Proceedings of the Royal College of Veterinary Surgeons, Veterinary Medical Societies, etc.

ROYAL COLLEGE OF VETERINARY SURGEONS.

SPECIAL MEETING OF COUNCIL, HELD JULY 21ST, 1876.

Present—The President, Colonel Sir. F. Fitzwygram, Bart.; Messrs. Balls, Batt, Broad, Collins, Cox, Dray, Moon, Moore, and the Secretary.

The minutes of the preceding meeting were read and confirmed.

Letters were read from Messrs. Cartwright, Harpley, and Talbot, regretting their inability to attend the meeting.

On the motion of the President, seconded by Mr. Dray, the amended Bye-law No. 34, as adopted at a special meeting of Council on July 14th, was duly signed and sealed, in accordance with the provisions of the Charter.

SPECIAL MEETING OF COUNCIL, HELD AUGUST 14TH, 1876.

Present—The President in the chair; Messrs. Dray, Collins, Moon, Field, Harpley, Fleming, Greaves, Withers, Batt, Woodger, and the Secretary.

The SECRETARY read the notice convening the meeting.

The minutes of the last meeting were read and confirmed.

Correspondence.

Letters were received from Messrs. Cartwright, Cox, and Naylor, stating their inability to attend the meeting.

A letter from Mr. Collins acknowledging the honour of his election as a Member of Council.

Letter from the Secretary of the Royal Agricultural Society, stating that the Veterinary Committee had agreed to the suggestion of the Royal College, that the selection of Examiners for the Society's Veterinary Prizes should be made by the Council, and that such selection should be final.

A letter from the Secretary of the Royal Veterinary College, dated August 3rd, enclosing the following alterations in their Bye-laws, which had received the sanction of the Lord President of the Privy Council :—

THE ROYAL VETERINARY COLLEGE.

Present—C. N. Newdegate, Esq., M.P., in the chair ; the Earl Fortescue, Colonel Kingscote, M.P., Barnard Holt, Esq., George D. Whatman, Esq.

At a Special Meeting of the Governors of the Royal Veterinary College, held at the College on the 1st August, 1876, and duly convened by notices in writing given by C. N. Newdegate, Esq., M.P., Chairman of the Governors, and one month's notice of the intention to propose the alteration in the Bye-laws having also been given on the 1st July, 1876, by the said C. N. Newdegate, Esq., pursuant to the 18th Clause of the Royal Charter, to the Secretary of the College,

It was resolved :—

1. That the 6th Bye-law of the College relating to subscribers be, if the Lord President of Her Majesty's Privy Council approve thereof, altered by omitting the word "quarterly" out of the second line.

2. That, subject to such approval, the 12th Bye-law be altered by omitting the words "no veterinary surgeon is eligible as a subscriber, but," and that the said 12th Bye-law shall read as follows, viz. :

"12. Every veterinary surgeon, being a former student or an honorary or foreign associate of the College, and every other honorary or foreign associate of the College, shall have the privilege of sending any animal into the infirmary for treatment on the same terms as a subscriber."

And that such Bye-laws, as altered, form part of the Bye-laws of the College relating to subscribers to the College.

On the motion of Mr. HARPLEY, seconded by Mr. FIELD, the letter with enclosures was ordered to be entered on the Minutes.

The SECRETARY stated that a telegram had been received on the 24th ult., from Mr. W. A. Taylor, Turner Street, Manchester, asking if it was too late to offer suggestions as to the Supplemental Charter, a copy of which he asked for. An answer had been sent to the effect that any suggestions should have been sent in long since, as the legal forms that had been entered into would preclude the possibility of their having any effect. A copy of the Charter was sent, and no further communication had been received from Mr. Taylor.

A letter was read from Mr. Loch, the Parliamentary Agent, asking for a cheque for £150 to cover the outlay that had been incurred in the obtaining of the Supplemental Charter.

Mr. FLEMING moved that a cheque be drawn for the amount and forwarded to Mr. Loch.

Mr. HARPLEY seconded the motion, which was agreed to.

A letter was received from Professor Walley, dated July 26th, acknowledging receipt of letter of 22nd July, in reference to the consideration of Bye-law 34, and asking to be informed upon what grounds Mr. Gregory was prevented from presenting himself for examination before the Scotch section of

the Examiners of the Royal College of Veterinary Surgeons, held in Edinburgh.

Also a letter acknowledging the receipt of letter enclosing Mr. Loch's opinion on the matter, and stating that, with all due deference to that opinion, he (Professor Walley) still maintained that Bye-law 30 had nothing to do with the matter, and that the wording of Bye-law 32 was very ambiguous and misleading. He thought that Mr. Gregory was entitled to present himself for examination, especially as the Council had the precedent to act upon which he had brought forward at the last meeting.

The following is a copy of Mr. Loch's letter of the 15th July, above referred to:

"8, GREAT GEORGE STREET, WESTMINSTER,
"*July 15th*, 1876.

"DEAR SIR,—Referring to our conversation this morning, and to the two letters—one from Dr. Dunsmure and the other from Mr. Walley—to yourself, raising points on which you desired my opinion, I would observe,—

"1. (Assuming that the student has not gone up for examination, and intends to remain in Scotland for his education), the winter session in London will go for nothing, and he must attend a winter session in Scotland, in addition to the summer session which he has already attended. See "Bye-law 30."

"2. The student referred to cannot, in my opinion, present himself before the Scottish section of the Board under the circumstances mentioned. He was bound under Bye-law 32, having been rejected at his first examination, to attend the lectures and general instruction of the school at which he had been educated during the interval between the rejection and subsequent examination. This he appears not to have done, but to have oscillated between the London College and the Edinburgh College. He ought to have remained in the London College, which must be considered as the place of his education; and he appears to have created a difficulty for himself, which, according to the strict letter of the Bye-law, cannot be cured.

(Signed) "W. A. LOCH.

"W. H. Coates, Secretary,
"Royal College of Veterinary Surgeons."

After some conversation on the subject, it was agreed that, as the matter had been referred to Mr. Loch, the Council should abide by his opinion.

New Education Scheme.

The PRESIDENT said that the next business before the Council was the consideration of a new educational scheme. It would be in the recollection of the Council that, towards the close of the previous meeting, Professor Walley said (although he had had six months to consider the matter) that it had lately occurred to him that a portion of the proposed scheme was very objectionable, and would necessitate an alteration either in the commencement of the Scotch session or the time of examination, and he intended to raise very serious objections to it. Subsequently Professor Walley had written to him, stating that the three Scotch Principals had had a meeting, and they had very serious objections to the proposals of the Council. He (the President) then wrote some other proposals, which were still objected to. He then wrote the following letter:—

"DEAR SIR,—I fear it will not be possible to find any scheme which will be perfectly agreeable to all parties; without, therefore, expecting perfect acquiescence, I propose for consideration the following scheme. In the mean time I wish to remark that it will not be possible to carry out the second year's course of two terms (for in this was the difficulty), unless the year be

divided into three terms. The Scotch people objected to the year being divided into three terms, and said that one winter and one summer session would be far preferable."

What Mr. Walley wanted was to have a very short term from the 1st November to the 24th December—not much more than seven weeks; then to have a very long term afterwards of eighteen weeks. If they had those two terms regularly, it was clear that the second year's course of two terms could not be worked, because the students would have eight weeks in summer and seven weeks in winter, and would not take the time necessary for the due course of instruction.

At present the Scotch term began on the 1st November and ended on the 15th April, and this was what the Scotch people wanted; but the Council desired, for their own purposes, to divide this session, as they called it, into two equal terms. Two terms of twelve weeks each, as in the London College, could not be made, because the whole of the terms were a fortnight shorter; but by sacrificing a week in each term, the Scotch schools giving an extra fortnight in summer, the same length of legal period of instruction would be arrived at in both the Scotch and English schools; and he thought that by a little sacrifice the Scotch schools would be satisfied. He would therefore put a motion to the effect on the paper. The following telegrams, dated 14th inst., had been received from Professor Walley :—"Acquiesce in your proposition of two terms of eleven weeks, commencing, if we choose, earlier than 1st November, and arranging holidays ourselves." Professor Williams telegraphed: "I agree to your last proposal. Try and conclude to-day, as we must issue prospectus without loss of time." He should like to ask the Council if they approved of his proposed scheme. The matter would again come before the Council at the next quarterly meeting; but if they approved of it now, he would write to the Scotch principals, informing them that the special meeting generally approved of it, and there was little or no doubt that it would be carried at the quarterly meeting.

In answer to Mr. GREAVES,

The PRESIDENT said that the original scheme met with the approval of the London School, and that the alteration now proposed did not interfere with that school. He had not heard from Professor M'Call, but he did not anticipate any difficulty from him.

Mr. FIELD thought that the President was fortunate in being able to make such an arrangement.

Mr. FLEMING thought that in the matter of rejected students a good deal should be left to the Board of Examiners. It might be that a summer session of study would be sufficient to pass a rejected student in a particular subject; but if the students were very bad, it should be in the power of the Examiners to send them back to their studies again for six months. He thought that should be a special instruction to them.

Mr. HARPLEY said he agreed to a certain extent with the remarks of Mr. Fleming, but the difficulty (if there was one) would be in this way: The Examiners had not yet been instructed officially to send back a student for any particular length of time. After the students were examined, the Examiners all met at the table and handed in their report; and it was then that the question of how the students had satisfied the Examiners was discussed. If it was to be an understood thing in the Council that the Examiners were then and there to decide that the students should be sent back for three or six months, well and good; but until some instruction like that was given to the Examiners, he was afraid they should not be able to carry out Mr. Fleming's suggestions.

Mr. FLEMING said he should then move "That the Board of Examiners

receive instructions from the Royal College of Veterinary Surgeons that they are empowered to refer the student to his studies for a summer session, or for a period of six months, according to the merits of the case." This, he thought, would obviate the difficulty.

Mr. HARPLEY thought that it would be better to postpone Mr. Fleming's proposition until the quarterly meeting, as there was no representative of the Veterinary College present; and he thought it would be a little hasty on the part of the Council to make a proposition without their having an opportunity of discussing the matter. He would suggest that Mr. Fleming give notice to bring forward his resolution at next meeting.

Mr. FLEMING said he was quite agreeable to adopt that course. He could not see that the teachers would have any objection to his proposal. If a student was rejected, of course he deserved to be rejected; but it might happen that a man was rejected for a slight mistake, and was good, perhaps, in all subjects except one; and he was sure they could not object to refer the man who was really bad to his studies for another six months. Seeing, however, that the Council was so engaged with the education scheme, he was willing to defer the matter until next meeting.

Report of Education Committee.

The Council then proceeded to reconsider, *seriatim*, the clauses of the above report. The following is a copy as finally amended :—

"REPORT OF THE EDUCATION COMMITTEE.

"Col. Sir Frederick Fitzwygram, Bart., President, in the Chair.

"At a Special Meeting of the Council, held August 14th, the following clauses were discussed *seriatim*, and the report was subsequently adopted.

"1. That the year be divided into three Terms—viz., two Winter and one Summer Terms. That each Winter Term consist of not less than eleven weeks, and the Summer Term of not less than eight weeks.

"2. That each candidate for the Diploma of the Royal College of Veterinary Surgeons shall be subjected to, and pass not less than, three Examinations before obtaining his Diploma.

"3. That no student be eligible for the First Examination until he has studied three terms at a school affiliated with the Royal College of Veterinary Surgeons.

"4. That no student be eligible for his Second Examination until he has studied five terms, nor unless he has studied two terms after passing his First Examination.

"5. That no student be eligible for his Third Examination until he has studied eight terms, nor unless he has studied three terms after passing his Second Examination.

"6. That at the First Examination a student be examined in Materia Medica, Pharmacy, and in writing of prescriptions (one table, one Examiner); Chemistry and Toxicology (one table, one Examiner); Botany (one table, one Examiner).

"7. That at the Second Examination a student be examined on the Anatomy of the Horse and other Domesticated Animals (one table, one Examiner); Physiology (one table, one Examiner); Histology (one table, one Examiner.

"8. That a student in his Final Examination be examined on Morbid Anatomy and Pathology (one table, one Examiner); Diseases of the Horse, including Veterinary Medicine, Surgery, and Therapeutics (one table, two Examiners); Diseases of the other Domesticated Animals, including Veterinary Medicine, Surgery, and Therapeutics (one table, two Examiners); and also that he undergo a practical Examination as to the Soundness and

Diseases of Horses, and in the writing of Certificates (two Examiners); and as to the Diseases of the other Domesticated Animals and in writing of Certificates (two Examiners).

"9. That each student pay the sum of £3 3*s.* for each Examination, and £1 1*s.* for Registration on obtaining his Diploma.

"10. That a rejected student pay £3 3*s.* for each Examination.

"11. That Examinations be held at such times and under such regulations as Council shall direct.

"12. The terms to be used by the Examiners in the Record of Examinations are "'Very Good,' 'Good,' 'Sufficient,' and 'Bad.'"

"13. That the President or, in his unavoidable absence, a Senior Member of Council deputed by him, be expected to attend and superintend the Examinations, once at least in the year, at London, Edinburgh, and Glasgow.

(Signed) "F. FITZWYGRAM.

"*August* 14*th*, 1876. "Chairman."

On the motion of the PRESIDENT, seconded by Mr. DRAY, it was resolved "That the Report be adopted, printed, and circulated."

Cruelty to Animals Bill.

The PRESIDENT stated that he had seen Mr. Loch in reference to the above that day. The Bill had been amended in the House of Commons in certain small matters which did not affect the interests of the veterinary profession. Those fresh amendments would be reconsidered that same evening, and from the lateness of the Session no other amendments could be introduced into the Bill. They might therefore consider the Bill as passed with the words in it which the Council wished to have, and which he considered satisfactory. The only thing that might occur was that a majority might throw out the Bill altogether.

Admission of Medical Men.

The PRESIDENT said it would be remembered that at their meeting the Council had agreed to admit medical men and veterinary surgeons educated abroad on somewhat easier terms than heretofore. He believed that what had been done was satisfactory to those gentlemen who advocated the claims of medical men to admission into the veterinary profession. At some future time he intended to bring forward a motion to relax the requirements in favour of specially qualified persons other than medical men and veterinary surgeons educated abroad. The persons he alluded to were chemists.

Mr. COLLINS did not think that this would be acceptable to the profession.

Mr. HARPLEY said if the President was to make such a proposal, he should ask him to refer to the minutes of some years ago, when Professor Morton made a motion on the subject.

The PRESIDENT said he should probably bring the subject forward, and then he would fulfil all he said he would do.

Revision of the Bye-Laws.

The PRESIDENT said that in order to save trouble he should ask the Council to appoint a Committee to revise the Bye-laws, and bring them before the next meeting, as alterations would become necessary under the New Charter.

Mr. DRAY proposed that the President, and Messrs. Collins, Harpley, Field, and Fleming, and the Principals of the Schools, be appointed a Committee to make the necessary changes in the Bye-laws as soon as the New Charter is received.

Mr. BATT seconded the motion, which was carried.

The Council then adjourned.

YORKSHIRE VETERINARY MEDICAL SOCIETY.

THE Summer Quarterly Meeting was held at the Queen's Hotel, Leeds, on Wednesday, the 26th July; the President, Mr. Charles Patterson, in the Chair. The following members were also present—viz., Messrs. Naylor, Freeman, Anderton, Ball, Pratt, Faulkner, Spillman, Falding, Scriven, Cuthbert, Ferguson, Murdoch, and Broughton. Mr. J. M. Axe was present as a visitor, and was nominated for membership.

Apologies for non-attendance were received from Messrs. Jno. and Jos. Freeman, Greaves, Carter, G. W. Carter, and Jos. Walker.

The minutes of the last meeting were read and confirmed.

Owing to the unavoidable absence of Mr. Geo. W. Carter, who was detained as a witness at the Assizes, his paper on Parturient Apoplexy was deferred until the next meeting.

Mr. FREEMAN related a case of suppressed Strangles, associated with debility, that had occurred in his practice recently.

Mr. SPILLMAN detailed similar troublesome cases occurring in his practice lately, and one case under treatment at the present time.

Mr. MURDOCH related a case of injury to the coronary band, the wall of the foot being torn away from its superior attachments.

Mr. SPILLMAN detailed the symptoms of a fatal disease occurring among fowls the property of Lady Hawke. An examination of a diseased fowl, kindly brought by Mr. Spillman, was instituted; and the opinion of the members was that tubercular disease of the liver existed, and that no treatment was likely to be of any benefit in these cases.

Considerable discussion regarding the various pathological questions raised took place.

Mr. M. NAYLOR exhibited a photograph of the fractured head of the femur of an exceedingly heavy draught-horse. The horse had been lame for some weeks prior to Mr. Naylor's opinion being requested. His opinion was that a fracture of the head of the femur existed, and the horse was then destroyed.

WM. BROUGHTON, *Hon. Sec.*

ROYAL AGRICULTURAL SOCIETY.

AT the Council Meeting of this Society, held on August 2nd, the Chairman of the Veterinary Committee, Hon. W. Egerton, M.P., reported as follows:—A letter having been read from the Royal College of Veterinary Surgeons in reference to the selection of Examiners for the Society's Veterinary Scholarships, the Committee recommended that the selection of Examiners which may be made by the Royal College be final. The Committee had received the following report from Mr. Duguid, the Society's Inspector, in reference to an outbreak of disease in the flock of Mr. Waldron, at Poughley, near Hungerford:—"I visited Mr. Waldron's farm, and found a few of his flock lame from ordinary Foot-rot. The inspector appointed by the local authority had reported the flock affected with Foot-and-mouth disease, and would not allow Mr. Waldron to move them across a road which runs through the farm. In this case the inspector is a policeman, and not capable of judging whether animals are suffering from Foot-and-mouth disease or not. Surely in such cases the opinion of a qualified veterinary surgeon should be taken before any action by the local authorities, if they do not employ a properly qualified inspector." The Committee recommended that a copy of this report be forwarded to the Secretary of the Veterinary Department of the Privy Council. This report was adopted, with an addition, which was moved by the Chairman of the Committee, and seconded by the Earl of Powis, that a copy of the report of the Society's Inspector be sent to the Chief Constable of the county of Berkshire.

Jurisprudence.

"HORNING" CATTLE.

On May 22, at the Kells (Ireland) Petty Sessions, a man was charged with cutting the horns off twenty-five cattle, and the evidence on this point was perfectly clear. In the course of the trial, the clerk of the court stated that about eight years ago an exactly similar case had been brought before the magistrates at Moynalty petty sessions, and that they had asked the advice of the law officers of the Crown upon it, and had dismissed the case upon the reply they had received. With the permission of the magistrates he read this reply for them.

"Dublin Castle,
"11th June, 1868.

"Gentlemen,

"I am directed by the Lords Justices to acknowledge the receipt of your letter of the 4th inst., relative to the complaint of Constable Atkinson against Thomas Farrell for alleged cruelty to animals by sawing off their horns, and requesting the opinion of the Law Adviser thereon; and in reply I am desired by their Excellencies to state that the subject is not a question of law but of fact, of which you yourself must judge.

"I am at the same time to transmit herewith, for your information, an extract from a report which has been received from Professor Ferguson on this subject.

"I am, Sir, your obedient servant,
"T. A. LARCOLM.

"The Magistrates at Petty Sessions, Moynalty."

[EXTRACT.]

"*Veterinary Department of the Privy Council Office, Dublin Castle.*

. . . . "The practice of cutting off horns is a very common one in the north and other parts of Ireland, and is decidedly attended with great remunerative advantages to the feeders of mixed stock. It has been stated that young cattle are artificially deprived of their horns for the purpose of deceiving their future purchasers into the belief that they are naturally hornless cattle, and, consequently, more valuable for breeding and other purposes than if they were long-horned cattle. But it is not for the purpose of fraudulent deception that the operation is performed; and even, were it so, the attempted deception would be a failure, as no person having any practical knowledge of cattle could be so imposed upon as not to immediately discover the difference between a naturally hornless beast of from a year old upwards, and one from which the horns had been removed by an operation.

"The pain suffered by the removal of horns from young cattle intended for stores, and that subsequent to the operation, and previous to the complete healing of the wounds, are, neither of them, anything like as great as that produced by the operation of castration, or of firing, or even by the application of a red-hot iron brand to the skin for the purpose of marking cattle; neither are the parts of the skull from which the horns grow, nor the horns, endowed with much sensibility. Nature intends them for organs of offence and defence, in which they are exposed to great shocks from concussion applied in different directions; and therefore has so constituted the roots and different parts entering into the constitution of these organs, that they can bear, as well as resist, injury with less suffering than can any other part of the animal. Although amply furnished with blood-vessels, they are but

little so with nerves of sensation, and consequently possess but little sensibility.

"Unlike many other operations, castration among the number, the removal of horns does not endanger the life of the animal, although it deprives it of the power of seriously injuring, often to a fatal extent, other animals and even human beings.

"It is with the view of thus depriving them of the means of injuring each other, as well as other kinds of live stock with which they are placed, either at pasture or in the straw-yards, that many persons who feed extensively, or deal in young cattle collected from different localities, have their horns removed. When the horns of all the stock kept on a farm are removed, the cattle of all ages are found not alone freer from injury or accident from each other, but also to thrive better than the cattle on other farms on which the stock are allowed to retain their horns. This depends on the stronger and more quarrelsome cattle being deprived of the means of injuring the others, and by frightening them and frequently interfering with their feeding, preventing them from thriving. Even when kept singly, depriving cattle of their horns improves the eventual quality of the animal by diminishing the development of the neck, which, as meat, is for its weight the coarsest part of the beast.

"Horns being intended as the natural weapons of offence or defence, and their uses depending on the movement of the head which is regulated by the muscles or fleshy part of the neck, an animal having horns to wield requires a greater development of neck to move the head in using them than one which has been deprived of its horns. The neck of the male deer is much less muscular when the new horns are growing than when he carried his full-grown antlers. If a man loses a hand or a foot, the arm or leg belonging to it, as a consequence, soon becomes wasted and loses the muscular power which is no longer necessary. Nor (something like the beast that loses its horns, and subsequently ceases being combative with its head as a weapon) will the human being who has lost his hand retain the strength and size of his arms; nor will he, however naturally combative, attempt to bully as a boxer. So with cattle deprived of their horns—they are comparatively inoffensive; also the nutrient principle, instead of nourishing so large a development of neck as is necessary for the wielding of horns, is expended in the growth of some other and more valuable meat-producing part of the frame.

(Signed) "HUGH FERGUSON, H.M.V.S."

The case was dismissed, as the magistrates were of opinion that they could not have higher authority than the Government Veterinary Surgeon.

We refrain from making any comments on the evidence and result of this trial; but we may remark that several convictions have been obtained, some of them recently, for "horning" cattle, and that the lists of witnesses for the prosecution have included some of the ablest veterinary surgeons in Britain. Is this a necessary or unnecessary mutilation? As the King of Denmark says, "that is the question." If the removal of cows' horns is defended on the plea that they are weapons of offence, then we suppose that extracting the fangs of dogs, claws of cats, incisors of horses,—nay, excising the hind-legs of the latter,—would be justifiable. The anti-vivisectionists are in the field, and in strong force; so amateur operators and their defenders had better be on their guard. At present it would be well if naturalists, biologists, and veterinarians (particularly the latter) could decide whether or to what extent the sensibility and utility of cows' horns, with their highly vascular core, differ in Ireland and England. In this decision of course Irish "bulls" would not be included,—they are always too good to suffer curtailment of their salient features, even if intended for offence.

Notes and News.

DRUGS IN STABLES.—The evidence given by the coachman Griffiths at the inquest on Mr. Bravo suggests that there is plenty of scope for the action of Sir J. D. Astley's Drugging of Animals Act. But this useful Act is of no use if owners of horses allow servants ignorant of the action of medicines to employ whatever recipes they may fancy. Mr. Griffiths's medical treatment was simplicity itself: he kept but one drug, which he employed inwardly both as a cure and a preventive of disease; and outwardly as a dressing for sores and injuries. Fortunately, he pinned his faith to a drug perfectly harmless to horses, but one so poisonous to the human subject that it is something more than a misfortune that such men are able to purchase and keep quantities of it. Tartar emetic, or the tartrate of potash and antimony, although capable of killing a man in doses of 20 or 30 grains, may be given to horses in very large quantities without producing any violent symptoms. It has been given in quantities of half a pound; and two or three ounces seem to have no more effect than so much Epsom salts. Its action on the horse is simply *nil;* and although some of the older veterinary authors used and recommended it, we believe that few of the leading members of the profession now keep it at all. Those who take for their guide old books on farriery use many queer recipes, some of which are harmless, some most dangerous. As an external remedial agent, Mr. Griffiths probably stands alone in using tartar emetic. There are to be found in some old books forms for making an antimonial ointment which acts as a most violent irritant, sometimes causing deep sloughing of the parts. As to the use of tartar emetic for the expulsion of worms, we unhesitatingly assert it is useless. The grub-shaped parasite known as a "bot," which attaches itself to the lining membranes of the stomachs of horses, is not removable by any known agent. Even the most violent irritants fail to remove it. Bots, however, remove themselves when the time for their further development arrives. Every spring the bots are expelled from the horse; and then it is that a knowing coachman fancies their removal is due to some of his nostrums. How it is that tartar emetic has so little effect upon horses we know not, but it is a remarkable fact that the horse is almost proof against that condition of the nervous system we call nausea. Tartar emetic is a poison to dogs; but from the facility with which these animals vomit, very large doses may be given without causing death. Majendie found that whereas six or eight grains injected into a vein caused death in an hour, half an ounce might be given by the mouth without a fatal result. Five grains applied to a wound on a cat caused death in three hours. We may just add that tincture of cinchona is highly spoken of as an antidote. In veterinary practice antimony is frequently used, but not the tartrate. There are three or four forms—tartar emetic, white antimony or tartrate of antimony, black antimony or sulphuret of antimony, the golden sulphuret of antimony, cinnabar or liver of antimony. The black antimony is most commonly used, and forms an ingredient of so-called alterative powders. The golden sulphuret is one of the ingredients of a "red" ball much favoured by hunting grooms as possessing some virtues in getting horses into condition. The liver of antimony, so called from its colour, has almost fallen into disuse. It was much vaunted by "Nimrod," whose knowledge of drugs seems to us to have been but slightly superior to that possessed by Griffiths. When we speak, then, of antimony and its use in stables, it is important to know which preparation is referred to. White antimony is a rank poison to man; the others are not. It may be mixed with other materials, and be invisible; the others cannot be used, on account of their marked colours, without attracting attention. And here we would suggest that, if poisons must be sold for

domestic and other uses, why can they not be coloured as arsenic is, or made pungent to the taste and nose, all of which might be done without destroying their efficacy? This would prevent mistakes as to their nature, and render them more easily detected when feloniously employed. But not only antimony is used in stables: arsenic, mercury, turpentine, tobacco, opium, and many other poisons are used. Some stud grooms have regular surgeries containing unmixed poisons enough to destroy a village. Many other substances having no immediate ill effect are used, but which, long continued, undermine the constitution. Grooms, like old women, will dabble in medicine if they are allowed. Thanks to Sir J. D. Astley, we can now bring to bear heavy punishments if they do so without permission. Few medicines are needed for healthy horses; and these could be obtained from a qualified veterinary surgeon by annual contract at far less a sum than is usually charged in the monthly stable-book.—*Land and Water.*

CATTLE DISEASE IN INDIA.—It appears that the undefined malady known as "Murrain" is somewhat prevalent in Coonoor, on the Ootacamund plateau, and European owners of cattle are reported to display a good deal of ignorance in the treatment of the disease. The result is that loss of cattle is frequently heard of, and native cowherds are allowed to do very much as they please.

TRANSMISSION OF MEASLES TO DOGS.—An interesting case of this nature is described in a recent report of the Epidemiological Society. A dog licked the hand of a child lying in bed, and on whom the measles eruption was at its height. Twelve days later the dog sickened, and suffered for two days with nasal discharge, and four days later died, with marked congestion of the throat and air passages. It has been held by some authorities that measles in man is the analogue of distemper in dogs—indeed, it has been urged that they are the same diseases; but this case contradicts such a view, for the dog in question had, four years previously, gone through an attack of Distemper; and although second attacks of the various eruptive fevers are common enough in children, second attacks of Distemper are rare amongst dogs—while such second cases, when they do occur, are invariably of a slight and temporary nature.

THE EFFECT OF HEAT ON CATTLE.—At the beginning of August, three fine heifers, in forward condition, belonging to Mr. Wannop, of Broadwath, were grazing in a pasture by Eden side, opposite Holme House, and the intense heat set them running wildly about the field until they were exhausted, when all three jumped into a deep part of the river. Their action was observed, and attempts were made to rescue them by means of ladders. Two were got out in a hopeless state, and though there were prospects that the third would recover, it died through the night.—*Carlisle Patriot.*

VETERINARY SANITARY SCIENCE IN FRANCE.—The French Minister of Agriculture and Commerce has published a circular, pointing out the vast importance of the interests about to be entrusted to the Superior of the newly-appointed Committee on Epizoötic Disease. He particularly calls attention to the large number and great farming value of the live stock at present distributed through France. This comprises 2,882,000 horses, 299,000 mules, and 450,000 asses; 11,284,000 oxen, 24,707,000 sheep, 5,377,000 pigs, and 1,791,000 goats: the whole valued at upwards of one hundred and sixty millions sterling. With such an amount of national wealth exposed to the chances of partial or wholesale destruction, from the ignorance or carelessness of incompetent persons, it is high time for the establishment of a regular service of State veterinary surgeons.

HOW TO UTILISE A DEAD HORSE.—In reply to a correspondent, the editor of the *American Agriculturist* says: A dead horse or other animal

should be skinned, and roughly cut up into as many small pieces as possible. A plot of ground a few rods square should then be ploughed deeply, and the carcase thrown upon the soil in the centre of the ploughed ground. Some freshly dry-slacked lime should then be scattered upon the heap, so as to cover it thinly but wholly. The loose earth is then to be heaped over it a foot in depth, and the pile covered with boards, so that the dogs cannot get at the heap and tear it up. If the least smell is perceived, more earth should be thrown upon the heap. In three months the heap may be dug over or turned over with the plough, and well mixed. The bones that cannot be broken up should be taken from the heap, and the fine matter will be worth at least 20 dols. per ton, to use in the hill for corn or cotton. The larger bones may be broken up and buried among the roots of grape vines or fruit trees.

How to work a Bull.—One reason why bulls are vicious, or at least untrustworthy and dangerous, is that they have never passed through any course of discipline. Well fed from the first, they are permitted to learn and exercise their strength at all times, until their owners are frequently surprised to find them turn suddenly upon them without warning. Besides this, the usefulness of these animals is greatly curtailed in consequence of their idle life and good keeping; and the complaint of unfruitfulness is frequently made. A remedy for both these evils consists in putting these animals to work. Viciousness is prevented by the discipline and training; and a bull that is broken to the yoke when young, and occasionally used, is kept in good temper and under safe restraint. He is no longer an uncertain and dangerous animal, possessing all the ferocity of a wild beast. He is kept in better health than when idle, and his value for stock purposes is greatly increased. Cases are known to us in which bulls, entirely uncertain as stock-getters, and consequently broken to the yoke, have after some time become perfectly sure, and have more than doubled their owners' profit in this way alone. One of the best common bulls for producing calves we have known was constantly worked in a cart or at the plough. The practice might be profitably followed with high-bred bulls which fail of producing calves, and are consequently greatly reduced in value.

A harness for a bull consists of a yoke and bow. The yoke is made to fit the neck snugly, with a curve sufficient to bring the ends low down at the sides. At each end there is a strong bolt and ring. The rings are made large enough to admit the end of a cart-shaft, a hold-back being fixed on the under side of the shaft. A draft-chain hooks into the eye of each bolt. A belly-band is buckled around the animal's body. This harness is very light and easy, and there is nothing about it to chafe or worry the bull. The harness for ploughing or cultivating consists of the same yoke and bow, and a pair of draft-chains which hook into the rings on the yoke. A broad leather band passes over the animal's back, arranged as to length to suit his height, and allow the chains to hang in the line of draft, without pressing on the back. There are rings on the lower ends of the chains, by which they are attached to the hooks of the whiffletree. The length of yoke should be adapted to the size of the bull, but should not be so long as to give too much room between the shafts and the draft-chains, nor so short as to allow them to chafe the animal's sides. In working a bull, it is best to use gentleness with firmness, and to avoid irritating or worrying the animal so as to provoke his temper. The same harness may be used to work cows; for there are many cases in which they may be worked to advantage, as well as a bull. A yoke of Dutch cows were exhibited at the New England Agricultural Fair of 1873, which had done all the ploughing and hauling of a thirty-acre farm, without failing in the least in their milk, and without any injury whatever to their calves. If this can be done in one case, it is worth considering if it may not be done in other cases with equal profit.—*The American Agriculturist.*

Parliamentary Intelligence.

HOUSE OF LORDS, AUGUST 7TH.

Cattle Disease (Ireland) Bill.

THE Duke of RICHMOND and GORDON, in moving the second reading of this Bill, said that in England animals suffering from Pleuro-pneumonia were compulsorily slaughtered, the owners being compensated by the local authorities, who for that purpose were the magistrates at Quarter Sessions. In Ireland, however, there were no local authorities in the various districts armed with this power. It was exercised by the Lord-Lieutenant and the Privy Council; and great difficulties arose in ordering the slaughter of diseased animals. Practically, in fact, there was in Ireland no compulsory slaughter of cattle if Pleuro-pneumonia broke out. The present Bill, which had passed through the other House, was devised to remedy a state of things which, to say the least of it, was most inconvenient. Under the Bill, the Lord-Lieutenant would be able to confer upon Boards of Guardians, within their several Unions, some of the powers which he, with the Privy Council, now exercised under the existing law; and the Bill would also confer powers of making regulations for preventing the spread of disease among sheep, cattle, and horses—horses being now for the first time included under the term "animals." There were provisions for the appointment of inspectors, and for compensating persons whose animals were slaughtered; a portion of the compensation being paid from the Cattle Plague Fund, which was created for that purpose. He believed it would be a very useful measure in Ireland, and if sufficient inspection were provided there, so as to prevent the exportation of diseased animals from Ireland to this country, great benefit would accrue to both countries, because English agriculturists were much indebted to Ireland for a large proportion of the stock imported into this country.

Lord EMLY concurred in the importance of the question, but doubted whether the remedy provided by the Bill was wise or desirable. In England a great deal of power for preventing the spread of cattle disease was given to the local authorities. In Ireland the system was a centralized one, and was worked by the Government through inspectors. Now, in the Committee upon which he served, the general opinion was that the Irish system was better than the English system, and all that was wanted was to place a larger number of inspectors at the disposal of the Veterinary Department. This Bill introduced, to a large extent, the English system into Ireland. He was convinced, however, that the duty entrusted to Boards of Guardians would not be discharged by them nearly as efficiently as if it were left to the Veterinary Department; and he suggested that the existing system in Ireland should be preserved, but improved.

Earl SPENCER knew well the great importance, both to England and to Ireland, that Irish cattle should be kept in a satisfactory sanitary state. He had always urged that the same regulations should be enforced in both countries; and during the time he was in Ireland the orders respecting the Cattle Plague were made more stringent. Against this increased stringency there was a strong feeling; but he had always maintained that, if owners of cattle in Ireland would not submit to proper regulations for preventing the spread of disease, they need not be surprised if in England stringent measures were taken with regard to the importation of Irish cattle. He was, therefore, glad to see a measure which was founded upon the report of the Committee of 1873. When in Ireland he thought that the same orders should be enforced

there as in England, but the Law Officers declared that there was no power to levy a rate for the purposes required, and Ireland was therefore left under a different law. He trusted the Bill would be the means of doing great good, both in Ireland and in this country. We could not rely wholly on the Board of Inspection, but we must carry into effect stringent orders, as they were carried into effect in England, for the extermination of this fatal disease among cattle. He thoroughly approved the principle of the Bill.

The Bill was read a second time.

(On August 8, a deputation of Irish members of Parliament waited upon the Duke of Richmond with reference to this Bill. Mr. Butt, in introducing the deputation, called the attention of the Duke to the two points connected with the Cattle Diseases Bill upon which they were anxious to place their views before him. That Bill provided for a system of local inspection, under local management, but under the control of the Lord-Lieutenant in districts in which Cattle Plague, or Pleuro-pneumonia, or some other diseases made their appearance. They urged that, under these provisions, effectual steps should be taken to prevent the spread of these diseases, should they unfortunately break out in any district in Ireland. But, entirely independent of this, under the provisions of the Bill there would be an inspection of all cattle exported before embarkation at any port. This would be conducted entirely under the control of the Lord-Lieutenant by officers appointed by him ; and he hoped and believed it would be so efficiently conducted as to prevent, as far as human precaution could do, the exportation from Ireland of any animal affected with any infectious diseases, or under circumstances which made it likely it would communicate infection. The resolutions which had been sent to his Grace expressed an opinion that all the expenses attendant on this inspection, including compensation for animals slaughtered or detained, should be paid out of the Imperial Exchequer. If not, they must be provided out of the funds raised by the general rate all over Ireland, which the Lord-Lieutenant had power to levy of his own authority. In England all the expenses of port inspection under the control of the Privy Council were provided for by a vote in the annual Estimates. No legislation would be required to do the same for Ireland. All that was necessary was that the sum necessary to meet those expenses should be proposed in the Estimates and voted by Parliament. In the course of his reply, and the conversation which followed, the Duke of Richmond said that he thought it very reasonable that the cost of an examination, which was carried on for the common interest of both countries, should be paid out of the Consolidated Fund. It would not be possible to insert a clause in the Lords to that effect, and, as Mr. Butt had said, the Chancellor of the Exchequer must have a voice ; but the reasonableness of what they asked was obvious, and in England the costs of all port inspections by the officers of the Privy Council was borne by the Consolidated Fund. As to the other point, there could be no doubt that an efficient examination at the Irish ports would greatly diminish the necessity of inspection in England. He would be very glad to get rid of as much inspection as possible ; but how far this could be done they would be better judges when they saw for a little time the operation of the Act, and had an opportunity of judging of the efficiency of the inspection in Ireland. Mr. Butt having, on the part of himself and the deputation, thanked his Grace for his courtesy in receiving and listening to them, the deputation then withdrew.)

NEW VETERINARY COLLEGE, EDINBURGH.

PRIZE LIST, SUMMER SESSION, 1876.

Medals Given by the Highland and Agricultural Society.

WINNERS OF MEDALS.—*Anatomy*—Wm. Atkinson, Masham, and W. K. Lewis, Oldham, equal; *Chemistry*—David Crabb, Carnoustie; *Botany*—W. K. Lewis, Oldham; *Materia Medica*—Joseph Smith, Manchester.

CERTIFICATES OF MERIT.—*Anatomy*—Wm. H. Roughsedge, St. Helen's; *Chemistry*—Jos. Smith, Manchester; *Botany*—Wm. H. Roughsedge, St. Helen's; *Materia Medica*—H. T. Hodgkinson, Manchester.

Medal Given by Professor Vaughan.

WINNER OF MEDAL.—*Zoology and Comparative Anatomy*—John Duff, Musselburgh.

CERTIFICATE OF MERIT.—W. H. Roughsedge, St. Helen's.

GLASGOW VETERINARY COLLEGE.

THE summer session of study at this institution terminated on July 19th; and on the 20th the examinations of the Royal College of Veterinary Surgeons were conducted within the Museum of the College—Professor Allen Thomson, of the Glasgow University, acting as President of the Board of Examiners. Fourteen students presented themselves for the first "professional examination," and thirteen passed very creditably: namely—James M'Queen, Phillip's Hill, East Kilbride; Clayton L. Hingston, Cork; John Pollock, Bellshill; Andrew Robertson, Glasgow: W. F. Houston, West Walkinshaw, Paisley; F. J. Insall, Solihull, Warwickshire; David Sinclair, Craigie, Ayrshire; David Thomson, Bankfoot, by Perth; Archibald Martin, Ardnahoe, Bute; Thomas Robertson, Binnie Place, Glasgow; H. A. Woodroffe, Island Bridge, Dublin; George Gair, Dingwall; and D. M'Pherson, Inveraray.

The following medals, granted by the Highland and Agricultural Society of Scotland, and certificates of merit granted by the College, have been awarded in the different branches of study:—Anatomy: Medallists—Florence J. Insall, Solihull, Warwickshire, and James M'Queen, Phillipshill, East Kilbride (equal); First Class—David Sinclair, Craigie, Ayrshire; Second Class—John Pollock, Bellshill. Botany: Medallist—David Thomson, Bankfoot, by Perth; First Class—James M'Queen; Second Class—H. A. Woodroffe, Island Bridge, Dublin. *Materia medica*: F. J. Insall; First Class—John Pollock; Second Class—Thomas Robertson, Binnie Place, Glasgow. Chemistry: Medallist—James M'Queen; First Class—Andrew Robertson, George Street, Glasgow; Second Class—Clayton L. Hingston, Cork. At the close of the examination, Professor Thomson intimated that, in accordance with the resolution of the Council of the Royal College of Veterinary Surgeons, he had the pleasure of intimating that Messrs. F. J. Insall, James M'Queen, and David Sinclair had obtained such distinction in all the subjects of examination as to entitle them to the "honorary degree," and that the Secretary (Dr. Dunsmure) would, without delay, notify this to the Council in London.

NEW MEMBERS OF THE PROFESSION.

At the meetings of the Scottish section of the Court of Examiners of the Royal College of Veterinary Surgeons, held in Edinburgh on July 18th and 19th, the following students of the Edinburgh Veterinary Colleges passed their "First Examination":—

New Veterinary College, July 18th.

Mr. William Atkinson.
„ William Henry Roughsedge.
„ Robert Robertson.
„ Joseph Smith.
„ Frederick Glass.
Mr. Alfred Walker Hodgson.
„ Richard Malone.
„ Alexander Bain.
„ William Knight Lewis.
„ Henry Thos. Hodgkinson.
Mr. Adam Sievewright.

Edinburgh Veterinary College, July 19th.

Mr. Michael Smith.
„ Archibald Baird.
„ William Reekie.
„ Peter James Combe.
„ Patrick Keane.
„ Nicholas Power.
Mr. Thos. Peter Young.
„ Walter Johnson Holland.
„ John G. Muir.
„ Charles Gelderd.
„ Thos. Alexandria Killick.
„ Joseph Oswald Martin.

At the meetings of the Court of Examiners of the Royal College of Veterinary Surgeons, held in Glasgow on July 20th, the following students passed their "First Examination":—

Glasgow Veterinary College, July 20th.

Mr. Andrew Robertson.
„ William Findlay Houston.
„ John Pollock.
„ David Sinclair.
„ David Thomson.
„ James Macqueen.
Mr. Francis Jenner Insall.
„ Clayton Love Hingston.
„ Harry Arthur Woodroffe.
„ Archibald Martin.
„ Donald McPherson.
„ George Gair.
Mr. Thomas Robertson.

Army Veterinary Department.

Gazette, August 11th.

16TH LANCERS.—Veterinary Surg. of the First Class C. Steel, from the 12th Lancers, to be Veterinary Surg., *vice* M. D. Byrne, deceased.

INDIA.

Veterinary Surg. J. K. Grainger, R.A., proceeds to Peshawur for duty.

Veterinary Surg. J. B. W. Skoulding, R.A., has leave to Murree on medical certificate.

Privilege leave of absence for two months has been granted to Veterinary Surg. C. Whitney Gillard, doing duty with the 15th Hussars.

Likewise to Veterinary Surg. C. Percival, 11th Hussars.

Veterinary Surg. Reilly, R.H.A., is at present on leave in Cashmere.

The Mysore Government have, we understand, engaged the services of an experienced "Veterinarian" to superintend horse-breeding operations in that province.

With reference to the retirement of Staff Veterinary Surg. W. Thacker, notified in the *London Gazette*, and republished in India, the Governor-General has reappointed Mr. Thacker Remount Agent at the Presidency.

Veterinary Surg. E. J. Batt is appointed Assistant Superintendent of Horse-breeding Operations.

THE CONTAGIOUS DISEASES (ANIMALS) ACT, 1869.

Gazette, July 31.

The Privy Council have appointed William Henry Hughes, M.R.C.V.S., to be an inspector for the purposes of the above-mentioned Act. John Thomas McHugh, M.R.C.V.S., has ceased to be an Inspector of the Privy Council for the purposes of the above-mentioned Act.

Gazette, Aug. 18.

The Privy Council has appointed Frederick Keal, M.R.C.V.S., to be an Inspector; and John Ward, M.R.C.V.S., has ceased to be an Inspector.

Obituary.

WE have received the following communication, dated July 26, from Professor Liautard, Director of the American Veterinary College at New York:—"I regret to inform you of the death of C. C. Grice, M.R.C.V.S., whose diploma is dated 1826. Mr. Grice was the oldest practitioner in this city—having been here, as he said jokingly, 'in harness for half a century.' May I also report to you the death of Mr. Cornelius Jansen, a graduate of the Copenhagen Veterinary College, class 1871, who died in Brooklyn, New York, a few days ago. A stranger in this country, and without friends, he had accepted a position as private coachman. His death was due to sunstroke. Some of his European friends would probably be thankful to hear of him; and as I know not how to send word to them, I thought the *Veterinary Journal* would prove a good medium for accomplishing this object."

[We thank Professor Liautard for his courtesy in forwarding these obituary notices, and feel sure that our Danish colleagues will appreciate his kindness with regard to the intimation of poor Mr. Jansen's demise, which we hope will be noted by our excellent contemporary of Copenhagen, the *Tidsskrift for Veterinärer.*]

Correspondence, etc.

TRANSMISSIBILITY OF GLANDERS.

To the Editor of the VETERINARY JOURNAL.

SIR,—I forward the following extract (from the *Deutsche Zeitschr. für Thier. Med.* ii., s. 72, Bollinger), as I consider it will be of interest to yourself and your readers:—"Bollinger inoculated a rabbit in both ears with the pus of Glanders, and injected the same poison into the abdominal cavity of a goat, and in both cases found that constitutional infection took place, the closing act of which was the appearance of the characteristic eruption of the disease upon the nasal mucous membrane. The infection of Glanders is, therefore, in no way connected with this mucous membrane, nor need this be the first portion of the body infected; but it is possible for the internal organs to be long the seat of the disease before the membranes of the nose are involved. Such cases as these have given rise to the supposition of a period of incubation extending over a period of weeks or even months. During this period of apparent latency, the disease is inoculable by a volatile infectious substance. In the question as to the relation of Glanders and Tuberculosis, Bollinger

decides for the entire independence and specific character of each process, since all inoculations with the products of either disease gave rise only to the same affection.

"Inoculation of the blood of animals affected with Glanders gave negative results."

Trusting you may consider this worthy of your notice,

I am,

Yours faithfully,

ALEX. G. BURNESS, M.D.

50, Green Street, London, W.

ARMY CORPS AND STAFF VETERINARY SURGEONS.

To the Editor of the VETERINARY JOURNAL.

SIR,—Will you or any of your numerous readers inform me:—1st, Is it intended to have a Chief Staff Veterinary Surgeon with each Army Corps? 2nd, If so, how is this possible, considering that we have only seven Staff Veterinary Surgeons altogether, and one of these officers—Mr. F. F. Collins—is employed in India, leaving only six (in reality only five) officers available to do duty with eight Army Corps: the other officer being Mr. Thacker, who is now on half-pay?

In the Army List it gives a Chief Staff Veterinary Surgeon to each Army Corps, and of these there are eight.

Yours truly,

"MAX."

[The eight Army Corps detailed in the Army List are—some of them, at least—very far from being complete, and in fact exist only in the Army List. Consequently, some of the Chief Staff Veterinary Surgeons are *in nubibus*, or, more correctly speaking, perhaps, in "embryo." Many changes will occur before all the eight Army Corps are thoroughly organised, but there will be no difficulty in finding Chief Staff Veterinary Surgeons: the job will be to find Veterinary Surgeons for the lower grades, unless some better inducement is offered than at present.—ED. *V. J.*]

UNIFORM OF ARMY VETERINARY SURGEONS.

To the Editor of the VETERINARY JOURNAL.

DEAR SIR,—Why are Veterinary Surgeons in the "Service" deprived of the pleasure of wearing full-dress cross-belts? This article of uniform is one which certainly makes a considerable difference in the appearance of an officer; and nothing can be more ridiculous than the incongruous "get-up" of gold-laced sword-belts and white leather cross-belts, in which Veterinary Surgeons have to appear on full-dress parades and other occasions when "full-dress" is the order of the day. In many regiments all the officers, both combatant and non-combatant, wear similar accoutrements, and in all cases of regimental Veterinary Surgeons the regimental sword-belt (both full and undress) is worn; but, except by the permission of the commanding officer, the departmental shoulder-belt is *de rigueur*.

The officers of the Medical Department were granted the privilege of wearing gold-laced belts some years ago; and now that a suitable time has pleased, surely it would not be too much to ask that their veterinary brethren

may be allowed a similar privilege. The present full-dress sword-belt of officers of the Veterinary Staff is a very handsome one; and a pouch-belt designed to match it, with an instrument case somewhat after the pattern of that worn by surgeons, would make a very suitable set of full-dress accoutrements for all Army Veterinary Surgeons. No doubt, if the privilege of wearing such were solicited, it would be granted; for it would cost Government little more than the expense of printing and issuing an order on the subject, and would save the annoyance of being asked, as a Veterinary Surgeon once was, "why he had appeared improperly dressed" on the occasion of an officer's funeral.

By the way, when is that unsightly and useless head-dress, the "cocked-hat," to be abolished?

I am, dear sir,
Faithfully yours,
"UBIQUE."

INSPECTING VETERINARY SURGEONS IN INDIA.

To the Editor of the VETERINARY JOURNAL.

SIR,—Should you deem the enclosed correspondence of any value, as related to the appointment of "Inspecting Veterinary Surgeons in India," I hope you will give it insertion.

At page 428 of the June number of the *Veterinary Journal* I find this subject alluded to; and I think, as your readers will see, it is one which deeply concerns all Army Veterinary Surgeons. With a view, therefore, of throwing some light on it, I beg to submit the enclosed letters, marked Nos. 1, 2, and 3. They recently appeared in the *Indian Pioneer*.

Yours truly,
"MAX."

NO. 1.

SIR,—In a letter signed "Discontent" in the *Broad Arrow* of 5th April, it is shown that the age clause of the Royal Warrant for the Veterinary Department does not affect Mr. Thacker, or rather that he still continues to remain in office, notwithstanding that he has exceeded the limit of age. Without any desire to see Staff Veterinary Surgeon Thacker's name in the half-pay list, or to find this officer removed from the important post which he so worthily fulfils as Government Remount Agent at Calcutta, I would like to point out the injurious effect which the system that regulates the arrangement of the departments has on the prospect of others. Mr. Thacker is nominally Inspecting Veterinary Surgeon, Lower Circle, Bengal; but in reality he is Government Remount Agent, Calcutta. Mr. M. J. Marshall is officiating in the appointment of Inspecting Veterinary Surgeon, Lower Circle, and has been for some time. Now, supposing that the appointment of Inspecting Veterinary Surgeon can be held for five years, why not make the appointment permanent for that period for some officer whose services and qualifications entitle him to promotion? Did Mr. Thacker continue to discharge the duties of Inspecting Veterinary Surgeon, I should be sorry indeed to advocate his retirement; but since there does not seem much chance of his services being replaced at the disposal of the Department, as I cannot point to one more suited to the important post which he now fills than he is, I think the Government would be only acting in a spirit of justice and fair play towards those senior 1st class Veterinary Surgeons by promoting one of them to the post of "Inspecting Veterinary Surgeon, Lower Circle,

Bengal, *vice* Staff Veterinary Surgeon Thacker, employed as Government Remount Agent." In doing this, Government would not be inflicting any injustice on Mr. Thacker, as, if it is true as stated by "Discontent," he has already exceeded the age at which other Staff Veterinary Surgeons have been called upon to retire, and he must consider himself particularly fortunate in not finding himself placed on the retired list ere this; besides which, the change which I advocate would not deprive the State of the services of this officer. Another point to which I would beg leave to allude is the fact that had an officer been appointed in the proper way as *inspecting* and not *officiating* Inspecting Veterinary Surgeon, when Mr. Thacker was first appointed Remount Agent, close upon two years of that officer's term of office would have elapsed, and some other 1st class Veterinary Surgeon would naturally be looking forward to promotion; but under existing arrangements Mr. Marshall may continue to officiate in the appointment for three or four years, and then be appointed to the post for five years more on the retirement or otherwise of Mr. Thacker. Considering the few staff appointments for disposal amongst the senior Veterinary Surgeons of the army, we think it hardly fair to cause a monopoly of any of those posts. A very wide spirit of discontent exists among the Army Veterinary Surgeons, on account of the very slow rate of promotion; and it behoves the authorities to take the initiative in attempting to improve the prospects of the members of the Department.

"MAX."

NO. 2.

SIR,—Will you allow me to draw the attention of "Max" to several points in his letter, which appeared in your issue of the 16th June, in which he is in error? 1st.—Mr. Thacker is not, and never has been, "Inspecting Veterinary Surgeon, Second Circle"; he was gazetted in 1872 to *officiate* in that capacity, and did so up to August, 1873, when he was appointed acting Remount Agent. By the rules of the service no officer holding an *officiating* appointment retains any lien upon it if transferred to another berth. Mr. Thacker, therefore, ceased to be even nominally "Inspecting Veterinary Surgeon" in August, 1873. 2nd.—Mr. Thacker was confirmed in the post of Remount Agent in the *Government Gazette* of 30th March last; and in the *War Office Gazette* of 16th May, 1876, his name will be found as "retiring upon half-pay," so that the fifty-five years of age rule *has* been applied to his case. True, he continues as Remount Agent at Calcutta, but that is a *special* appointment, one of general selection, not departmental. 3rd.—The post of Inspecting Veterinary Surgeon has not been *permanently* filled up since the death of Mr. Johnson, in December, 1870. No less than five officers have officiated during the interval: viz. Mr. Turnbull, from March to August, 1872; Mr. Hallen, from August to December, 1872; Mr. Thacker, from December, 1872, to August, 1873; Mr. Marshall, from August, 1873, to June, 1874; Mr. Meyrick, from latter date to December, 1874; and Mr. Marshall again up to present date—he having been temporarily officiating as Principal Veterinary Surgeon during the last six months of 1874. I agree with "Max" that it is very desirable these appointments should, when practicable, be filled up permanently, and the tenure of office of an incumbent limited to five years, so as to give others a chance of the few departmental prizes there are to be obtained; but the Veterinary Department is not at all singular in having some of its higher posts filled by men who are officiating. In any and every branch of the services, civil as well as military, a large proportion of the senior appointments are thus filled.

"ARGUS."

No 3.

SIR,—In the *Pioneer* of June 24th, I find a reply from "Argus" to some remarks of mine on the subject of Staff Veterinary Surgeon Thacker, which appeared in your issue of June 16th. Allow me to state, in reply to "Argus," that it was subsequent to the despatch of my letter that Mr. Thacker's name appeared in the *Gazette* as placed on half-pay. To quote from "Argus's" letter—"The post of Inspecting Veterinary Surgeon has not been *permanently* filled up since the death of Mr. Johnson in 1870." Now, permit me to give an extract from the General Orders relating to the appointment of Inspecting Veterinary Surgeons in India; and I will leave your readers to judge whether justice has been done to the Senior 1st class Veterinary Surgeons:—"No. 634, dated 20th July, 1866. With the sanction of the Right Honourable the Secretary of State for India, the Governor-General in Council is pleased to authorize the appointment of Inspecting Veterinary Surgeons in India in the proportion of two for the Presidency of Bengal, and one for each of the Presidencies of Fort St. George and Bombay." Nothing can be more distinct than this order; yet, strange to say, it has been ignored since December, 1870. It is only reasonable for any body of officers to complain when Government fails to keep faith with them. That nearly six years should have been allowed to elapse without appointing an officer as Inspecting Veterinary Surgeon, Second Circle, in the room of the late Mr. Johnson, is, to say the least of it, disheartening. It does not in the least weaken the grounds of my complaint when "Argus" states that "the Veterinary Department is not at all singular in having some of its higher posts filled by men who are officiating." I might even go so far as to state that it is singular, as the few staff appointments that exist should be filled with a view of accelerating promotion—not in the manner that at present regulates the matter, which seems to have for its object the diminution of the chances of promotion. I can only repeat that justice is not being done to those senior Veterinary Surgeons who have now more than twenty years' service. Under existing arrangements their chances of promotion cannot be much worse. It is false economy on the part of the authorities to ignore the demands of a Department which has strong claims on the consideration of Government.

"MAX."

MORE BORROWED PLUMES.

To the Editor of the VETERINARY JOURNAL.

SIR,—I fear that what has been euphemistically termed "borrowing plumes" is not confined to a certain class outside the profession, but is practised by those in it, some of whom are supposed to be its "heads"—whatever that may mean. In your contemporary, the *Veterinarian*, for this month, I observe that in the report of the meeting of the Scottish Metropolitan Veterinary Medical Association, it is mentioned that Mr. Robertson's paper on "Anæmia in Sheep in Oregon" previously appeared in that journal; and in the discussion which ensued, Professor Walley is made to say that he had the pleasure of reading the paper in the *Veterinarian*. Now, as the paper appeared in the *Veterinary Journal*, and not in the *Veterinarian*, and as Professor Walley made no allusion to the latter periodical, but to your journal, I wish to know whether this is a petty deception practised by your contemporary upon its readers, or whether it is a mistake?

In a large district I am now the only member of the profession who takes

the *Veterinarian*, as my colleagues have long since made up their minds that it no longer represents them or their interests, and they like to read about something more instructive and cognate than "flukes" in missionaries or worms in elephants. But if this substitution of its own title for that of the *Veterinary Journal* has been done purposely, I shall at once discontinue a periodical which could be guilty of such a mean act, as I am certain it would stoop to lower things to serve its own ends. This, if it is as I surmise, is the opposite of honest competition, of which we have heard something in a now celebrated introductory lecture. We wonder if this is the way in which the pillars of science are usually erected—with borrowed materials!

Yours obediently,

August 8th, 1876. "DIOGENES."

[We will not pronounce whether the matter referred to is a mistake or a deception. We are of opinion that a deception is always a mistake, though the converse is not correct in every instance. Mr. Robertson's paper certainly appeared in this journal *only*, and Professor Walley mentioned reading it in this journal.

The Secretary of the Society, of whom we have made inquiry, assures us that in the report he sent to our contemporary he stated this fact; and he adds, "The alteration was made in the 'Veterinarian' *wholly and entirely without my knowledge or consent.*" In the copy he forwarded for publication in the *Veterinary Journal* there is no allusion whatever to the *Veterinarian*. The report of the meeting also appeared in the *North British Agriculturist;* and it is this which we published in our issue for August. Not only this, but in the report of the Council Meeting of the Royal College of Veterinary Surgeons, published in the same number of our contemporary, Mr. Dray is stated to have said, with reference to the late Mr. Wilkinson, that he endorsed every word which had been written in the *Veterinarian* in the notice of that gentleman's death. It is needless to add that Mr. Dray referred to the *Veterinary Journal;* as the meeting was held on June 30, he could not have read the obituary notice in the July number of our contemporary. We were present at the meeting, and chanced to have with us one of the first stitched numbers of the July issue of this journal; and in it Mr. Dray read the notice referred to. We make no comment on this matter, except to state that, twelve months ago, we came to the conclusion that we could no longer suffer ourselves to be in any way connected with our contemporary, which we had assisted in keeping in existence for so many years—sometimes at much labour, inconvenience, and expense to ourselves. We accordingly withdrew from its editorial staff, for the reason that we believed it was acting unfairly and injuriously to the veterinary profession in this country. This reason we stated in these terms to the editor-in-chief. What we considered was being done by our contemporary towards the profession as a body, we consider is now being done towards ourselves in the above, and other instances which we do not care to allude to. When the *Veterinary Journal* was commenced, we were solicited by the chief editor of our contemporary to exchange periodicals with him. We consented, scarcely suspecting that the code of honour which rules the behaviour of journalists would be infringed. To mark our sense of the conduct alluded to, we have requested the publishers of the *Veterinary Journal* to strike the periodical in question off our exchange list. In addition to the lamp of knowledge, it is to be feared that we shall soon require the lantern of Diogenes.—*Ed. V. J.*]

PROUT *VERSUS* PARADISE.

To the Editor of the VETERINARY JOURNAL.

SIR,—Mr. Gerrard's remarks, in this month's issue of the *Veterinary Journal*, on the short account given of the evidence in the trial of Prout *v.* Paradise, are concise and practical; and in the main I therein concur.

With regard to the scientific witnesses for the prosecution, I should like to see their mode of procedure in a similar case to the one recorded. Men may doubtless be good theorists, but be practically useless either in the sick box or byre; and yet these may be witnesses by whom the jury are unfortunately misled. During the past twenty years many interesting embryotomy cases have, in a country practice, come under my notice, some of which are recorded in your contemporary since 1856. I, like others, have lost some cases, notwithstanding all the labour, care, and anxiety bestowed on them; and I recollect one case in which the uterus had become attached to the fœtus in a short-horn cow. This connection no traction or instruments could sever (I will send you some day the notes from my case-book relative thereto); and thus far I presume that I have been most considerately treated by my employers in not having some action brought against me for malpraxis. When next I am called upon to perform the Cæsarian operation, which I have again successfully done this season, or have some difficult parturition case, I shall be inclined to telegraph for some of these experts (I paying the travelling expenses), and see if they can gain some further knowledge of obstetrics, thereby to enable them to speak with certainty about such matters when called into the witness-box, and obviate their making egregrious statements which injure the reputation of a professional brother. I am quite at a loss to account for the spleen exhibited by the pursuer's scientific witnesses towards the defendant, and beg to tender that gentleman my sincere sympathy in the unfortunate termination of the trial. I shall be happy to add my mite towards defraying the costs, and trust, Mr. Editor, that you may be able to find space in your valuable journal to draw the attention of the members of the profession to the matter, and thereby lessen the burden imposed upon Mr. Paradise.

Faithfully yours,

August 3, 1876. "NEMO."

[Mr. Broad, M.R.C.V.S., Bath, desires us to mention that he receives subscriptions.—*Ed. V. J.*]

"HORSE CAUSES:" THE UNCERTAINTY OF THE LAW.

To the Editor of the VETERINARY JOURNAL.

SIR,—I have read the case published in the veterinary journals of July*—Prout *v.* Paradise—and have heard it carefully commented on by a large number of veterinary surgeons in various parts of the kingdom; I have also heard it discussed at the meetings of several veterinary medical associations, and my own feelings and those expressed by others are perfectly unanimous on the subject: strong sympathy with Mr. Paradise, and disapprobation of the conduct of the plaintiff and all those who supported him. Nor can this be wondered at, if the report referred to be a full and truthful statement of the facts.

Mr. Paradise became involved in this lawsuit during the performance of his ordinary professional avocation; he acted in it to the best of his judgment

* The *Veterinary Journal* was the first to publish the case, in its *May* number.—ED. *V. J.*

at a critical and trying moment; he did what probably ninety-nine of every hundred men of experience and ability would have done; but, nevertheless, the patient died, as in all probability she would have done whatever treatment might have been adopted.* Yet Mr. Paradise is sued for the value of the mare; and although I admire the courage and gallantry with which he contested the cause single-handed, and sympathise deeply with him in his non-success, still this was not to be wondered at when we see the superior discipline and weight of his antagonists. During an experience of more than forty years in my profession, I have over and over again seen a good and just cause lost in consequence of the case not having been properly got up—the solicitor, counsel, barrister, or whoever it might be, not comprehending the question in all its bearings, or not taking that interest in it which he ought to have done. A broad common-sense view of it has not been taken, the strong overwhelming points are either not brought forward at all, or only barely alluded to; while the weak points—points of no consequence—are alone dealt with. Consequently, the case is lost; and when the amount is £300, £500, or £700, it is such a calamity to most veterinary surgeons that the word "ruin" is the only appropriate term. Seeing this—seeing the great uncertainty that appertains to our avocation—seeing how impotent one man is to cope single-handed with men of power and capital—seeing this, I can say that it will be a blot upon the reputation of our common profession, if we cannot collectively make an ample provision by which we may secure influence, power, and justice in the hour of need.

It may be that Mr. Paradise acted as do some of our large shipowners, railway companies, and firms with great capital, who annually lay by certain sums as an insurance fund, and insure their own property, being in this way independent of insurance companies. If this was his system no one can blame him; it is his own business, and he cannot complain. It may be that this feeling has actuated Mr. Paradise throughout his career, and prevented him joining the Veterinary Mutual Defence Society; but even if it has done so, I hesitate not to say that the torturing anxiety, and apprehension of loss of reputation and property, would not have been a tithe of what it has been if he had only felt he had the countenance and support of the best and ablest men in the profession, who would most willingly have come forward and given him the benefit of their experience, advice, and assistance—professionally and pecuniarily. There would have been no occasion for anxiety, as the machinery and funds of the society are ample for all purposes. The subscription is a

* The mare did not die, but was destroyed by the owner. We have all along abstained from venturing to give an opinion on this painful case, except to head it as a "questionable verdict," and to point out the responsibility incurred by veterinary surgeons in giving evidence in trials in which their colleagues are sued for *malpraxis*. We still maintain this neutral position, satisfied that we have done good service in first drawing attention to the case, and eliciting the opinions of those most competent to discuss such a question. But we cannot refrain from observing, that what in our opinion constitutes its most serious aspect is, that the evidence of a farrier and a farmer, as well as farm-labourers, should have been received as sufficient to found a judgment upon in such a technical question; and, worst of all, that Mr. Paradise should have been found guilty of *killing* the mare, when the mare was actually destroyed by the owner himself, and without the recommendation of a veterinary surgeon, or any sufficient evidence as to the condition of the creature. This, we consider, is one of the most flagrant miscarriages of justice recorded in our annals. If the owners of our patients are to destroy them when they think they are in a dying state, and then to make us pay for their value, it is high time to consider the risks we incur before we undertake their medical or surgical treatment, and to frame our charges accordingly. But we feel sure such cases are not likely to happen again for some time. One in a century should be sufficient to keep the profession on its mettle.—Ed. *V. J.*

little over 2½d. per week, or 10s. 6d. a year; and the wonder is, not that so few are subscribers, but that any sane member of the profession does not snbscribe, and thus become entitled to the benefits to be derived from such an excellent society.

I am, yours truly,

Knott Mill, Manchester, *Aug.* 13. THOMAS GREAVES.

CORRIGENDUM.

IN Editorial for August, page 110, line 20, for *Pleuro-pneumonia Epizoötica*, read *Pleuro-pneumonia Zymotica.*

ANSWERS TO CORRESPONDENTS.

THOMAS H. SIMCOCKS, Drogheda.—Mr. Fleming's prize essay on "Vivisection" was published by Hardwicke, 192, Piccadilly, London. The price is one shilling. We fear it is now very scarce; but if application be made to the Secretary of the Royal Society for the Prevention of Cruelty to Animals, 105, Jermyn Street, St. James's, he will probably furnish a copy.

P. H. D.—The early numbers of the *Veterinary Journal* are out of print, as well as that for February last, though *three* editions were published. The publishers will give full price for copies of these numbers.

INQUIRER.—Hoblyn's "Dictionary of Medical Terms" (latest edition) will be found most convenient.

THE communications from Professor Walley, Messrs. Simcocks, Billings, Morton, and others, shall appear in our next.

Communications, Letters, Books, etc., Received.

COMMUNICATIONS have been received from Professor James Law, Cornell University Ithaca, U.S.A.; Alex. G. Burness, M.D., London; "Diogenes"; W. H. Coates, London; J. B. Martin, Rochester; C. Cunningham, Slateford, Edinburgh; W. Furnivall, Kingston; John Lawson, Manchester; Frank S. Billings, Royal Veterinary School, Berlin; "Nemo"; J. Roalfe Cox, London; "Max"; Professor A. Liautard, American Veterinary College, New York; "Ubique"; A. E. Rolls, Arundel; W. Thomson, Cawnpore; R. F. Frost, R.A., Bombay; B. Wolstenholme, Melton Mowbray; James Cowie, Bromley; Professor Walley, Edinburgh; T. H. Simcocks, Drogheda; R. Morton, Hexham; T. Greaves, Manchester; W. Broughton, Leeds; R. Mitchell, Glasgow.

BOOKS, etc.: *R. H. Dyer*, A Few Plain Words about Horses; *James Cowie*, Rabies Madness in the Dog; Vivisection in France; Progress Report of Commission Foot-and-mouth disease in Victoria, Australia; *M. C. Garola*, L'Alimentation des Animaux de la Ferme.

JOURNALS: *Wochenschrift für Thierheilkunde und Viehzucht; Der Thierarzt; Gazetta Medico-Veterinaria; Veterinarian; Annales de Méd. Vétérinaire de Bruxelles; Recueil de Méd. Vétérinaire; Journal de Méd. Vétérinaire et de Zootechnie; Revue Vétérinaire; Lancet; Animal World; Archives Vétérinaire.*

NEWSPAPERS: *North British Agriculturist; Agricultural Journal; Farmer; Cape of Good Hope Standard and Mail; Carlisle Patriot; Rod and Gun; National Live Stock Journal* (Chicago); *Shrewsbury Chronicle; Australasian; Melbourne Argus; Hour; Examiner; Montreal Herald.*

All Communications, Books for Review, Advertisements, etc., must be addressed to the Publisher, 20, King William Street, Strand, W.C.

Morbid Specimens are to be forwarded addressed to the Editor, "Veterinary Journal," Brown Institution, Wandsworth Road, London.

Communications must be accompanied by the name of the writer, whether he may desire to have it published or not. Anonymous letters and articles cannot be inserted. The Editor does not hold himself identified with the views or opinions expressed by Contributors. Communications for insertion in the next number must arrive on or before the 15th of the present month.